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PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*On Cancer.* By MAURICE HENRY COLLIS, M. B., M. R. I. A., F. R. C. S., Surgeon to the Meath Hospital and County Dublin Infirmary; and Examiner in Surgery to the Queen's University in Ireland.

(*Continued from* p. 62.)

IF we eliminate those growths which, however they may resemble cancer, yet are not identical with it, we shall find genuine cancer to present itself in external parts under two typical forms,—the one, acute, in growth tuberiform, in outline soft, and brain-like in consistence; the other, slowly developed, hard and tense, with far-reaching roots. Let us anatomize these varieties known as *encephaloid* and *scirrhus*. Acute or encephaloid cancer, for many reasons, must be considered the type of the disease: in all other forms of disease we accept the acute as typical, nor is there any reason for not doing so in cancer. In acute cancer we have the special element in greatest abundance, in greatest activity of life and growth, producing disturbance and destruction, not, indeed, in proportion to the size of the tumour, but in proportion to its rapidity of development; if neglected, bringing death at an early period; and finally, more amenable to treatment.

The last statement is not yet universally accepted. There are still some who believe that encephaloid cancers are not so safely removed as scirrhous; but the experience of most surgeons will bear me out that permanent recoveries are less frequent in the chronic cases. Not only are local relapses more common after removal of scirrhus, but the disease has more frequently implicated distant parts, and the seeds of death are sown from secondary growths, often before the advice of the surgeon has been sought. For these reasons, I take encephaloid as the typical form of cancer; at the same time, I do not believe that there is any greater difference between scirrhus and encephaloid than what exists between the acute and chronic forms of any other disease; and that, however convenient the terms may be for clinical purposes, as marking the extremes of slow or rapid development, yet that in practice we meet infinite shades of rapidity; and that, of many cancers, it were hard to say whether they are acute or chronic, encephaloid or scirrhus. This is seen by one example:—One author will call a tumour lardaceous scirrhus; another has it lardaceous encephaloid; and this because the lardaceous form of cancer holds a sort of midway place in rate of growth. Having dissected encephaloids of three months' growth, no larger than a haricot bean, and scirrhus of many years' duration, with intermediate forms of various date, I have come to the conclusion that there is no difference between any form of genuine cancer which is not explicable by rate of growth, or, in other words, inherent active vitality of the tumour. This alone throws up a broad barrier between them and the cancroid growths, even if their anatomical characters were less strongly marked than I have found them to be. The action of cancer on the proper structures of the body is, in fact, referable to very simple laws—it acts very much as a foreign body—and, whether in the acute or chronic type, its effect on the tissues can be explained by laws resembling those which regulate the conduct of fibrous tissues in presence of foreign bodies, while the effects of cancroid growths are referable more to the various forms of absorption, ulcerative and interstitial, such as hypertrophies of natural structures will produce. I do not mean to say that there are not points where these two classes of effects touch, and are almost possessed in common by both cancer and cancroid, for such undoubtedly are occasionally met with, especially in the more advanced stages of each disease; but the type of alteration in neighbouring parts is broadly different in the two classes of cancer and cancroid; and, generally speaking, it cannot be reduced to the action of one general law, such as will be found

to govern the disturbances produced by cancer of every form and degree.

Encephaloid cancer, in the earliest appreciable stage, is a collection of cancer cells or nuclei, rapidly formed in great numbers, not apparently deriving their origin, as the epithelial cells always do, from a membrane, but seemingly isolated among the proper tissues of the part in which they grow. How the first cells are formed, whether by a morbid development of natural lymph cells or epithelial cells, anatomy does not teach us, nor have we derived any assistance from it in determining the question of constitutional tendency. Once formed, however, there is no difficulty in following their progress, and observing their effects. They accumulate rapidly in encephaloid; new cells form rapidly in the abundant fluid which they draw forth from the neighbouring blood-vessels; the proper fibrous and vascular tissues of the seat of disease are at first expanded over the masses of cells, or, rather, are pushed aside and separated by them, so that in proportion to the rapidity of development is the paucity of stroma. The stroma of an acute cancerous tumour is, in fact, only the natural fibrous tissue of the part affected. If the tumour grows rapidly, the cells accumulate in large masses, with the smallest possible quantity of fibrous tissue holding them together, and the capillary circulation through the tumour, although minutely divided, does not reach all the cells. Whatever lymph may be diffused among them is quickly appropriated to the development of fresh cells: in one word, the balance of growth is in favour of the new cellular elements of the tumour, and against the fibrous. The activity of the cancer is so great that the neighbouring parts are simply pushed aside by it, and do not at first take on the chronic thickening, which is the result of a slower and long-continued irritation. From this mode of growth it would result that the most perfect form of acute cancer should be globular in outline, and such we see to be the tendency.

Where no fascia or band of fibrous membrane interferes with the direction of growth, the outline is always circular; but no tumour can acquire any large dimensions without encountering many such obstacles, and hence the tuberiform outline that characterizes encephaloid cancer. If the cells are developed in loose areolar tissue, the shape is generally globular, while in glands it is tied in by bands in all directions. We rarely, if ever, see this typical form of acute cancer preserved throughout a tumour. Here and there a nodule is found in which these characters can be seen and studied, but in every tumour we also see traces of the chronic type; the cells act in time, as foreign

bodies, upon the fibrous tissues near them; they irritate them, and cause condensation. This effect may be studied with profit. There is nothing special in it; although many of the best marked features of scirrhus are due to it, still, there is nothing but what results from chronic inflammation, by whatever cause produced. Any one who has carefully observed the effect of long-continued irritation on fibrous structures will agree to this. The clinical peculiarities of chronic cancers are all explicable from this point of view, and thus are referable to one of the simplest pathological laws possible. The same contractile tendency of inflamed fibrous tissue produces the cirrhosed condition of liver, the deformed cicatrix of burn, and the retracted nipple and stony hardness of scirrhus. The cause of the inflammation may be different, but the product of the inflammation is the same in all. In cancer the cells act as the foreign or irritating body. They cannot lie for any time in contact with areolar tissue, or fibrous bands of fasciæ, without irritating them, and causing an effusion of plastic lymph into their substance. This lymph, from its subsequent low organization, contracts, condenses itself, and finally strangles and atrophies all the non-fibrous substances in its neighbourhood—even the cancer cells are not spared. They disappear to a great extent from the centre of old scirrhous growths, and the hard, stony mass which takes their place contains fewer of them in proportion to the age of the growth. As in certain cases of chronic pulmonary phthisis, this contractile tendency of the effused lymph condenses the proper tissue of the lungs, and so leaves no place for tubercle to remain, so is it in chronic scirrhus of the breast. And as in phthisis a permanent cure seldom takes place as a result of this effort of nature, so also in cancer. Plastic effusion surrounds the original seat of deposit, and in this plastic material new tubercles form, or the germs of new cancer cells, as the case may be, and thus the disease extends in constantly widening circles,—the very lymph that is to check or cure the disease in one point is the means by which the fatal germs extend far on into neighbouring parts. This is a fact of no light clinical import, both as furnishing us with diagnostic marks of cancer, and a rule for appropriate treatment. Let it be observed, that the epithelial growths, the simple fibrous tumours, and all other that could be confounded with genuine cancer, are free from this peculiarity,—they do not act on neighbouring structures as foreign bodies. Even the epithelial growths, when infiltrating the tissues, produce absorption, not condensation, and are consequently devoid of all the symptoms which result from this contractile formation. This is explained, in

part at least, by the fact that epithelial cells are associated with a secreting membrane which, as a rule, is pushed on before the masses of cells, and therefore they act by a simple process of pressure, causing atrophy of the parts they press upon, although occasionally I have found separate cells, apparently without an intervening membrane, attached to tissues—generally to muscular fibre; even when epithelial growths extend down to bone, and destroy it, it will be found to be destroyed by ulcerative absorption—the result of pressure—rather than by infiltration of cells between the osseous particles.

The action of cancer on bone, on the other hand, is similar to that on soft parts; it inflames the bone, causes an infiltration of lymph, develops new cells in the lymph, and so pushes its way between the layers of the bone, and destroys it by an infiltrating process, not by simple ulcerative absorption, the result of pressure upon its surface. No doubt, in the end the natural structures are removed by a process of absorption in either case, but the preceding steps are essentially different. The cancroid growths are simply hypertrophic, as a general rule; the cancerous are infiltrating; the one destroys by surface pressure, as any hypertrophy of natural structure destroys; the other acts as a foreign body, separates the tissues by infiltration, softens them by the inflammatory process, extends itself between them in all directions, and finally, by the contraction of the product formed, destroys the proper structures.

The differences are well marked in the earlier periods of growths, and point to a considerable essential difference: when epithelioma grows rapidly, and extends down to soft and yielding structures, such as muscle, the difference becomes less marked; the secreting membrane either disappears, or becomes so attenuated as to be discoverable with difficulty, and the clinical features of the disease are in proportion more malignant; the disease, in fact, becomes similar, in some of its effects, to genuine cancer, though there are still sufficient points of difference, both pathological and diagnostic. The contractile action of chronic inflammation upon fibrous structures gives rise to many phenomena of value in the differential diagnosis of tumours. The retraction of the nipple in scirrhus of the breast results from the shortening of the milk ducts under the chronic inflammatory process; the dimpling of the skin by retraction of fibrous bands which are attached to it; the fixing of the tumour to the fascia over the pectoral; the drawing of the gland outwards towards the axilla; not to mention the small size and stony hardness of the very chronic cases,—are all results of this one process. As I said before, no other tumour produces the

same effect on the fibrous membranes, and consequently in no other growth have we these phenomena. Encephaloid cancers even are destitute of them in proportion to their acuteness. I have seen cancer of the breast, the size of a small infant's head, in which the nipple hung down loose and long, while the tumour was unattached to fascia or gland, and the skin, though tightly stretched, almost to bursting, was perfectly free from unhealthy attachment to the subjacent growth.

Another and perhaps still more important result of this inflammatory action is the extension of the cancerous deposit to the skin and glands. If we examine the skin over a chronic cancer we shall see that it appears dimpled or depressed in points which correspond to the orifices of cutaneous ducts, and consequently to the points at which fibrous membrane is attached to its under surface. Not only is it thus depressed in points immediately over the tumour, but even to some distance from it the dimpling may be observed, getting more faint as it radiates further from the centre of irritation: these more distant depressions show that the inflammatory process of shortening has seized on the ends of those fibres which are nearest to the gland,—in short, they are sure forerunners of the cancerous infiltration which follows in the interstices between them. The portion of skin which presents these minute lines and points of depression is not necessarily poisoned, although doubtless all but so. I have traced these depressions to a distance of several inches from a very chronic cancerous tumour no larger than a hazel-nut, which subsequently became developed so as to admit no doubt of its nature. The shortening of the fibre which has one end attached to the tumour and the other to the skin will produce a dimple in the skin, even though the shortening be seated only in the end close to the gland. Infiltration of cancer cells, however, follows closely on the track of this shortening; in the interstices between these inflamed fibres the cells push on, the plastic lymph which their presence has excited forming the material for their reproduction, until by degrees they impregnate every interstice of the subcutaneous areolar tissue, and, advancing on into the substance of the skin, are deposited in considerable numbers wherever they can find room. We then have the skin presenting numerous depressed points, much deeper, and separated from each other much farther than in the healthy state; the skin looks coarse, and has a brawny feel; the points of the ducts are so far apart, and the skin so much thickened as to look like the rind of bacon, or as healthy skin would appear through a pocket lens. Simultaneously with this poi-

soning of the skin, the lymphatic system, so closely allied to the skin, becomes entangled. The process seems identical with that above described, and the poisoning of the one will generally coincide with that of the other.

In encephaloid cancer the skin and glands remain alike free from cancerous deposits until the stage of ulceration; the skin becomes daily more strained and attenuated: at last it cracks in a minute point or line, the fissure extends, and by degrees an ulcer is formed; the edges of the ulcer almost at once become inflamed, and the cancer cells shoot into the plastic lymph. Thus the integument becomes incorporated with the growth, and the cells underneath, restrained no longer by their dense covering of skin, shoot out in fungous masses, and accumulate with immense rapidity. The ulceration of the skin is at once followed by a sympathizing irritation of the lymphatics, and this irritation is but the precursor of cancerous infiltration of the absorbent glands. Thus, both in encephaloid and in scirrhus the poisoning of the skin is the signal for the cancerous enlargement of the glands. The practical difference between the two is that, in the one, poisoning precedes ulceration; in the other, it results from it,—so that in scirrhus the glands are hopelessly poisoned long before the stage of ulceration, while in encephaloid the glands not only may, but generally do, remain free from cancer until ulceration is fairly established.

Scirrhus or chronic cancer destroys the proper texture of its seat more completely than encephaloid. The latter infiltrates that part in which it has its origin with rapidity, pushes aside the proper glandular or other structures, and grows so fast as to seem to have no time to destroy them. It also expends its energy very much on the spot where it first appears. If in the breast, but one lobule will be infected, the rest being thrust aside and lost among the mass of disease,—little altered in structure, it may be, except where the unusual size of the new growth produces a mechanical reduction of the healthy parts by pressure. Where the seat of disease is less distinctly isolated, a more general diffusion of the cells is the result, as, for example, in the testis and bones. In fact, in encephaloid of the acutest types, the disease destroys the patient by profuse discharges and racking pain, often before it has time to destroy the gland or tissue in which it originated. The disease appears in its simplest form of an infiltrating growth. In scirrhus, on the other hand, we have the irritating nature of the deposit brought to light. Essentially a foreign body, we have seen it irritate, inflame, and condense the fibrous structure beside it.

These contract on the special glandular tissue or muscular fibre, and even upon the vascular elements of the seat of disease, and by their resistless grasp compel their disappearance. This destruction of proper tissue is, however, but the result of the contraction of the *tissue inodulaire*, or low organized lymph, which the pressure of the cells calls forth, and the cells themselves seem to have no direct power of destruction.

The absence of this *tissue inodulaire* in connexion with those growths that are named, somewhat pedantically, *homeomorphous* is not a little singular, and is unexplained by those who assert their identity with cancer. I know no other way of accounting for this absence than that these growths being homeomorphous, that is, composed of tissues not different from the ordinary constituents of the body, are not productive of irritation such as cancer produces, and that cancer causes the irritation which in turn gives rise to the contractile tissue, because it is heteromorphous, or at least differs from any of the ordinary healthy constituents of the body. I have lately had an opportunity of dissecting an epithelial tumour of the leg, in which the cautery had been extensively used. The cicatrix was perceptible beside a mass of epithelial cells; these were contained in delicate membranes, and arranged in numerous convolutions, tightly packed and jammed against the tough cicatrix, but in no point had they effected an entrance into its substance, much less a perforation of it; it had acted as a complete bar to the spread of the growth in its direction. Here was a corroboration of the view I have given above. Not only was there no tendency to that form of local irritation which ends in the formation of the *tissue inodulaire*, but where it had been, as it were, accidentally produced, it had so little in common with the epithelial growth as to refuse to amalgamate with it. I need scarcely say that the presence of a band of cicatrix would operate as an assistance rather than a bar to the spread of cancer.

When we have once got a clear conception of the mode in which the two extreme forms of acute and chronic cancer are developed, and of the effect the morbid growth produces on neighbouring textures, the intermediate forms are easy to be understood. The typical forms are rarely met with in such purity as I have described. Shades of variety will be found in every tumour: even the most rapid growth is more or less nodulated and tuberiform from intersecting bands, and these not merely of fascia or duct rendered tense by the interstitial deposit of cells, but more or less condensed and shortened by the inflammatory process; while in the most chronic tu-

mour portions will be found, especially in the outskirts, in which the cells have been but lately formed, in smaller numbers, to be sure, than in encephaloid, but identical with it in substance. The principal variety intermediate between the two extreme forms is the lardaceous cancer, known also by a variety of names, such as napiform, apinoid, &c., all drawn from the physical characters of the section of the tumour, which the fancy of the surgeon compares to that of a turnip, pear, or other vegetable growth. I prefer the term lardaceous for many reasons: it suggests the resemblance of the integument to the coarse rind of bacon; the section of the tumour also is like that of the coarse fat of bacon; and finally, these appearances and its greasy feel are due to the entanglement of a considerable quantity of fat in the interstices of the growth. This lardaceous form is perhaps the most common in which cancer attacks the female breast. Not only is there generally considerable natural fat in the organ, but the tendency to the formation of cancer is greatest at the turn of life, at which time also females are apt to lay up an increased store of fat in the subcutaneous tissue. Hence the cancerous element becomes deposited in a fatty nidus; its action is modified by the presence of fat, on which it acts more slowly than on the fibrous and glandular structures. I have already explained that the primary injury done to neighbouring parts by cancer cells is the irritation and condensation of the fibrous tissues, and that the secondary effect, produced by this condensation, is the removal of glandular or muscular tissues by absorption.

Fat is not easily removed by pressure; the pressure that would cause rapid removal of muscle has little if any effect on it. Hence we find cancers of the breast often exhibiting a rapid growth, by a contemporaneous deposit both of cancer and fat, and hence also in later stages, when general wasting has set in, we observe the apparent anomaly of a wretched wasted frame, and a breast still loaded with fat. Not only does fat slowly yield to the atrophy which cancer produces, but it performs an important function in aid of the wasting of muscle and glandular tissue. The death and removal of muscular fibre, and of the secreting epithelium of the mammary gland, are brought about by fatty or oily degeneration. To be sure, this is not confined to the cancer: the oily degeneration of these tissues is the ordinary mode of their removal, when they have done their work, and are to be removed. Of these changes it is not my intention to speak at present; they are very interesting, and easy to study, and will well repay the student of pathology.

In connexion with cancer this oily degeneration does not

differ from what arises in muscles which from any cause are restrained from action. The oil globules are seen adhering to the interior of the myolemma in variable quantities; according as the work of destruction has advanced, they take the place of the proper muscular substance, leaving the albuminous envelope untouched. Where any muscles have been restrained from motion, or where cancer occurs in an extremity, and prevents the use of the limb, this fatty degeneration is quite visible to the naked eye. In the case of amputation for epithelial cancroid of the leg, to which I have above alluded, the superficial muscles of the calf were comparatively of a healthy red colour, while the solæi, which had not been called into use, and which were more implicated at their edges than the gastrocnemii, were so far gone in fatty degeneration as to be of a yellow bilious hue. On examination I found the oily state of the muscles to extend far beyond any sign of cancroid deposit. Had I not been acquainted with this condition of muscle, the appearance of the limb might well have startled me, as at a first glance it may have seemed as if the knife had not been carried clear of the disease. Let these appearances, resulting from the presence of fat or oil, be taken at their proper value, and they will be found to present little that is special or peculiar as far as cancer is concerned. Cancer uses the ordinary means for the removal of structures, and among these the process of disintegration by oily degeneration. I am urgent on this point, as I have seen good surgeons alarmed or puzzled by appearances easy of explanation and harmless in themselves; and still more frequently have I heard sound opinions given from mere clinical experience, without an effort to explain, or even to comprehend, the scientific grounds which would enable others to arrive at similar safe conclusions.

On this head I may safely say that microscopic investigations alone have enabled me to make any use of the valuable experience of the distinguished surgeons of the Dublin school. Had I not made myself familiar with the forms of the disease as revealed by the microscope, their valuable instructions would have only tended to render a subject, which is of itself obscure, utterly unintelligible. The "tactus eruditus" which enables an experienced hand to determine what tumour can be safely removed, and what should not be touched, cannot be imparted by any clinical teaching; but the careful investigation of the anatomy and pathology of these tumours will teach the student as much, if not more, than he can learn from any man, if he is careful to combine it with judicious clinical observation.

I have already referred briefly to the mode in which cancer

cells perish when they have reached their term of existence. How long any given cell will live, we have as yet no means of ascertaining; but we find that it may have either of two distinct ways of death, and in these it resembles other cells, both natural and pathological. The round, full cell of encephaloid perishes by oily degeneration; the flattened, angular, or elongated scale of scirrhus dries up, cracks, and falls away into dust: all parts of the cell, the envelope or cell wall, the nucleus, and contents, alike perish in these ways. In encephaloid the cell wall resists destruction longest, and when it gives way, nothing is left but a mass of oil globules held together by the law of attraction, and easily dispersed. In scirrhus the nucleus is frequently seen entire in the midst of the dust and fragments of the cell wall and granular contents. Here, too, we find the modes of death which affect cancer cells similar, indeed identical, with those which destroy other cells, whether healthy or morbid. Nature does not multiply her processes needlessly even in disease.

One strong proof, if more be needed, of the unity of cancer in all its forms is to be found in its general activity in the young, and its slowness in the aged or infirm. Even the exceptional cases of great activity in these latter classes are only striking proofs of the same. Encephaloid we find to be essentially a disease of the child, or, where an adult is attacked, some organ of slow development, as the testis or breast, is generally its seat. When it does attack the aged or infirm, how fearful are its ravages! The child with fungus of the eye-ball may seem well-fed, and ruddy; the adult woman with encephaloid of the breast remains in excellent health as long as the skin is unbroken; but the man of fifty, with acute cancer of the parotid, is rapidly deprived of all vital energy, he becomes all at once shrivelled, pallid, and exhausted,—all the powers of life seem to have left him, and to become centered in the tumour,—and this grows at a rate beyond anything seen in the young, until the patient is worn down by agonies of pain, even before any ulceration has taken place to give rise to destructive loss. In all these forms we see the acute type of the disease, of great activity, most frequent of occurrence in those whose vital processes are rapid, and, when it occurs in the feeble, overwhelming their powers of life by its inherent activity of growth. Scirrhus, on the other hand, is a disease especially of organs that have ceased to be active, or have been overworked, and are prematurely worn out. A large proportion of all tumours is composed of scirrhus of the breast, and nine-tenths of these occur after the age of forty-five. The organ has ceased to

have a very active life, and the disease is therefore slow in its progress. If we look to cancers of the uterus, we may see apparent contradictions to this statement, but apparent only. In the first place, a large proportion of so-called cancers of the uterus are really epithelial growths, seated on extensive cancroid ulcerations. Genuine cancers of the uterus are not so common, and when they are of the acute type, their course resembles that of cancer of the parotid in the old, both in rapidity and severity.

I shall conclude the present papers by drawing attention to one fact which alone would almost prove the identity of scirrhus and encephaloid, and their diversity from all other forms of growth: namely, that the primary scirrhous growth is followed by secondary encephaloid, and that in no case have any of the cancroid forms been attended with such a result. Fibroplastic, when incompletely removed, breeds fibro-plastic, generally locally, rarely at a distance. Epithelioma, in like manner, is followed by outbreaks of epithelioma: and we may fairly challenge the production of one case in which an experienced microscopist, with good glasses and a knowledge of the case, has come to any other conclusion. This fact, incontestibly proved by the researches of earnest microscopists, is not invalidated by the opposition of those who have no knowledge of the microscope, and without, it may be, either time or inclination to learn.

(*To be continued.*)

Art. XI.— *On "Placenta Previa."* By R. W. O'Donovan, M. R. C. S., Belturbet.

In giving the details of the four cases of "placenta previa" which I have met with in a practice of seventeen years, my object is to further the desire for obtaining professional statistics, and to assist with my mite the valuable records of obstetrical science.

Case I.—May, 1842. I attended Mrs. Murry, a farmer's wife, aged 40, residing three miles from me: she was the mother of several children, all of whom she gave birth to without further assistance than that of an ordinary midwife. For ten days previous to my attendance she suffered from uterine hemorrhage, constant, but not severe. When I saw her she was dreadfully blanched—the bed saturated with blood—restless, excitable, and frightened at her state. On examination, I

found the vagina full of coagula, its structure soft and dilatable; the os uteri dilated to the size of half-a-crown; the placenta, rough and rugged, covering the entire opening. As it was my first case of this variety of "preternatural labour," I plugged the vagina well, and waited for an hour, that the os uteri might become further dilated before I should introduce my hand; at the expiration of this period I found the mouth of the womb considerably more patent. I could not satisfy myself whether the placenta was placed equally over the os or not; but, having gently insinuated the points of the three first fingers of my right hand in a conical form within the lips of the os uteri, and by a careful rotatory motion gradually dilated the os, pressing my fingers at the same time steadily against the placenta, I thus, with patience, and without much difficulty, dilated the os, and at the same time separated the placenta from its abnormal position; then, passing my hand above the placenta posteriorly, I ruptured the membranes, searched for and laid hold of both feet, and rapidly drew the child into the pelvis, and delivered as speedily as possible. The child was quite blanched and dead; with a cold hand on the uterus, I induced good contraction, and forced away the placenta by external pressure; with careful bandaging and padding the contraction was kept up, and the woman ultimately did well. She suffered from the consequences of hemorrhage, viz., "tinnitus aurium" and distressing palpitations, for a long period, and, indeed, never recovered her healthy complexion. This woman died of typhus fever after three or four days' illness, in the latter part of the year 1847.

Case II.—April, 1847. I attended Mrs. M'Donald, aged 28, also a farmer's wife, living four miles from me; she was the mother of four children. I found her alarmingly exhausted, pallid, very restless; pulse 90, jerking and compressible; she stated that about three weeks previously she first perceived a small gush of blood; it then ceased for one or two days, appeared again, and so continued, with intermissions, until the last three days, when it became constant, increasing in quantity, accompanied by occasional severe cutting pains.

On examination, I found the vagina distended with large clots, and the os uteri dilated to the size of a penny; the edges soft and dilatable, the placenta distinctly felt through the opening, and the fœtal head discernible above the pubes. I introduced my hand, forming my fingers into a cone, thus gradually dilating the os, and pressing against the placenta at the same time; it separated at its posterior attachment; I then, without

difficulty, ruptured the membranes, seized the feet, and quickly delivered the child, which was dead.

In the management of this case I experienced great difficulty from the extreme excitement and nervous irritability of my patient, who plunged and twisted about in the bed, screaming in a dreadful manner, and constantly calling out, "Leave me to God!" I can never forget the scene, which was trying in the extreme. She made a good recovery, and has borne two children since, without requiring medical assistance.

Case III.—October, 1848. I was called to attend, with Mr. ——, an old apothecary, Mrs. B., aged 45, residing seven miles from me, in her fifth accouchement. In the previous December she miscarried, but from that period enjoyed good health to the third day previous to my visit, when she was attacked with slight cutting pains, which were attended with alarming hemorrhage, followed by repeated faintings; this state of matters continued until my visit at 2 P. M. I found her pale, exhausted, restless, and excited; pulse feeble and thready, with difficulty counted. The vagina was plugged with coagula, the os dilated to about the size of a crown-piece, soft and dilatable; the placenta covering the opening, distinctly felt; it was impossible, however, to say with exactness whether it was placed more anteriorly or posteriorly. Having removed the coagula, I proceeded to dilate the os, pushing before me the placenta in the manner detailed in the previous cases. Having detached the placenta, which also separated from the posterior wall of the uterus, I ruptured the membranes, seized both feet, and quickly delivered the woman. As the two previous children were dead, I felt an intense anxiety to try whether artificial breathing and warmth could restore animation, though the idea did not hold out much, if any, promise of success, as life appeared to be quite extinct. I left the mother in charge of Mr. ——, with instructions to remove the placenta, bind and pad tightly, and give her some wine; after the lapse of an hour's patient perseverance the little child began to gasp; at this moment hearing some bustle in the room where the sick woman lay, I proceeded there, and found my patient dead! the uterus distended with blood, the binder loose, and not padded; there was no external hemorrhage. The infant did well.

Case IV.—April, 1857. Was urgently called to see Mrs. F., aged 33 (residing about ten doors from me), carrying her fourth child; she had been ailing all day, but continued occupied with her usual business: a few moments before I was sent

for, sharp cutting pains came on, accompanied by a profuse flow of blood; having been put to bed, I examined her, and found the os uteri dilated to the size of a shilling, the lips soft and full, vagina soft and dilatable, placenta felt distinctly through the opening. The third case having given me painful evidence of the impossibility of one professional man affording the necessary amount of care to the parent and child, I requested the assistance of another medical man, and carefully plugged the vagina. At the close of an hour's interval, the dilating pains having continued without intermission, the plug was removed from the vagina, and was followed by a considerable discharge of blood. Dr. Wade having made an examination, and agreeing with me as to the necessity of prompt interference, I at once proceeded to dilate the os and deliver my patient in the manner adopted in the previous cases. The placenta separated from its anterior attachment; having ruptured the membranes, I found the feet presenting, and having seized them, I quickly delivered without encountering any difficulty, Mrs. F., being exceedingly gentle and easily managed; the child was alive. I removed the placenta by external pressure. Mrs. F. recovered well, and was able to nurse her child; she, however, suffered from extremely severe after-pains, which yielded to an external and internal anodyne treatment. I have found a liniment holding chloroform in suspension rubbed over the uterine region, in this and similar cases, of great advantage.

Placenta previa (beyond all question the most fearful obstetric complication that the practitioner can be called on to contend with), whether considered in relation to the child, the mother, or the character of the medical attendant, requires that the *best practice*—that which affords the greatest chance for preserving the lives of both parent and offspring—should be well engraven on the mind; for, as a general rule, in the country at least, he can seldom have the benefit of a consultation, seldom time for a moment's reflection, while the life-blood of two human beings is rapidly welling away in his presence. Doubt, hesitation, or rashness may be equally fatal to both: it is not too much to say, therefore, that a thorough knowledge of what is best to be done under the circumstances is a matter of the deepest moment—fraught with the luxury of a recovered patient's thanks, or, on the other hand, a life-long regret.

That the best practice is not as yet *un fait accompli*, the records of the profession abundantly prove. On one side, the writings

of such men as Professor Simpson, Dr. Radford, and others, are opposed to the practice and opinions of men *at least* their equals. This divergence of opinion among men of rank is liable to produce doubt and hesitation, particularly in the minds of young practitioners. Whether the results of my own experience will tend to throw any light on the subject or not, I do not pretend to say; for statistical facts, though of unquestionable importance, can only lead a certain undefined distance on the road of inquiry, because it is quite impossible to aggregate a given number of cases, where all the details are exactly similar; and equally impossible to define or describe clearly and accurately those minute differences which are at once discernible to the practical physician.

While I cannot avoid differing with the teaching of men eminent in the profession, I do so with the utmost diffidence in myself, and the greatest possible respect for them, and with the conviction that my ideas are not entirely devoid of interest, being deduced from facts.

The first stage of the operation appears to me to be that which calls for the most careful investigation, being beyond question the most tedious, most difficult, and most trying to the patient and her attendant: in its management Dr. Churchill advises that "the points of the fingers be gently yet firmly insinuated within the os uteri, and then passed between the placenta and cervix, on that side on which we believe the placenta to be narrowest." My objection here is that the action is grounded on an assumption, and that the result may turn out diametrically opposite; for it is perfectly impossible to calculate with certainty at which side the placenta is narrowest, unless, indeed, in "partial presentation," and to such a case the teaching has no reference. In my four cases it was not possible to determine with any approach to certainty whether the placenta was equally implanted over the os and cervix uteri or not; in three it was found the greatest portion was placed anteriorly; in the fourth the reverse was the fact.

The primary idea in the action being the separation of the placenta, appears to me to be also erroneous. I consider the primary motive should be the dilatation of the os and cervix uteri, and, as a consequence, the detachment of the placenta; and, acting on this view, I dilate with a rotatory motion of my fingers, pressing my fingers at the same time steadily against the placenta, and forcing it from me, as the act of dilatation proceeds. Thus three important steps in the delivery go on "pari passu"—the dilatation of the os uteri, the suppression of

the hemorrhage, and the detachment of the placenta: nor is this distinction unreal or of little importance,—time, which is all important, is saved; and every moment taken from the entire period of delivery adds considerably to the chances of a happy result.

Dr. Barnes' theory of "hemorrhagic circles" is so novel and so interesting, I shall leave its consideration to men of his own status, with one remark: if the dilatation of the os uteri be not alone the cause of the hemorrhage, but also the means of its *arrest*, as he asserts, and in which opinion I fully concur, surely sound judgment would guide us to quicken and terminate this stage of the labour as expeditiously as possible. And if the surgeon can succeed in detaching the placenta to the extent of *three inches all round the os*, or "lower polar circle," as he defines it, the necessary contraction to close the bleeding vessels, and so prevent dangerous flooding, should, I conceive, present an aperture of from three to four inches, through which the hand, if presented with tact, steadily and gently, should pass; and the hand, having once entered the cavity of the uterus, should not, in my judgment, ever be withdrawn until it is accompanied by the child: there can be no possible motive for not doing so if the feet present; and beyond all question this is the safest practice for both parent and child. If the prostration of the mother is so great as to require some moments of rest, she will thus be in the best position to benefit by it, the hemorrhage being stopped, and the child within reach of the operator's hand, without having to introduce it a second time. But if the feet do not present, the operation of turning is not in reality either difficult or dangerous while the child is suspended in the "waters;" while, on the contrary, it becomes both difficult and dangerous if attempted after the waters have been allowed to drain off, and the uterus has contracted round the body of the child.

Besides, such a practice puts the patient to the agony and suspense of two operations, the first consisting of the dilatation of the os uteri, the detaching of the placenta, and rupturing of the membranes; and the second, the re-introduction of the hand, and turning the child, if then possible, and if not, the use of the crotchet.

It is my sincere and solemn conviction that this is not a state to which a patient or her offspring should be reduced by her medical attendant. I am equally convinced that all the resources of art and scientific skill should be brought to bear to shorten the entire period of the labour. Every woman anxiously

looks forward to the moment when the doctor commences any manual operation, with an earnest expectation that he is about to deliver her. Is it a matter of no importance to disappoint her—to shock her nervous system even in the slightest degree at such a moment! In ordinary cases a very trivial shock or disappointment has been productive of the most alarming consequences—how much more should it be dreaded in cases like the present, where, from the loss of blood, the nervous system is depressed often to the lowest state of irritability!

Art. XII.—*Additions to the Statistics of Fractures.* By Dr. Oscar Heyfelder, of Munich[a].

During the years 1825 to 1854, in the University Hospital at Erlangen, there were treated 562 fractures, being an average of 18·7 per annum. The average number of the surgical patients received there every year is 634; from 1825 to 1829, inclusive, it was 450; from 1829 to 1839, inclusive, 350; from 1839 to 1844, inclusive, 650; from 1845 to 1854, 1000. For the last thirteen years the surgical clinique was under the direction of Professor T. F. Heyfelder. And out of 634 patients there were 18·7 fractures, or 1 in 34. So the proportion obtained by our statistics during thirty years does not agree with that obtained by Dr. Middledorpf[b] during three years in the Allerheiligen Hospital at Breslau; there the proportion of fractures to the surgical patients was 1 in 25.

The difference may be thus explained in some degree,—that Erlangen (22,000 inhabitants) is a much less town than Breslau (116,235 inhabitants). This hospital, therefore, admits much less surgical cases than a larger town, and especially less fractures; as well as extraordinary cases, particularly operation cases, which come to the latter from all the neighbourhood, and even from remote districts, to be treated in the University Hospital.

Of the 562 fractures, 50 were of the head, 65 of the trunk, 241 of the upper, and 196 of the lower extremities. Their

[a] [As in a former communication by Dr. Oscar Heyfelder in our pages, we altered his idiomatic style as little as possible, we feel under so much obligation to him for the trouble he must have taken to pen his observations in the English language, that we have wished to present his valuable essay to our readers as far as possible in his own words.—Ed.]

[b] Beiträge zur Lehre von den Knochenbrüchen. Breslau: 1853.

frequency, according to the different parts of the body, is as follows:—

Head.	Trunk.	Upper Extremity.	Lower Extremity.
Skull, . . . 24	Vertebræ, . . 3	Scapula, . . . 9	Femur, . . 56
Fissures of the skull, . . 5	Sternum, . . . 2	Clavicle, . . . 27	Leg, . . 62
Bones of the face, . . . 19	Ribs, ... 47	Infraction of clavicle, . . . 9	Tibia, . . 30
Diastasis, . . 2	Infraction of ribs, 11	Humerus, . . 16	Fibula, . . 26
	Pelvis, . . . 2	Radius, . . . 75	Patella, . 13
		Ulna, ... 15	Tarsus, . . 2
		Infraction of ulna, 4	Metatarsus, 2
		Fore-arm, . . 52	Toes, . . 5
		Infraction of fore-arm, . . . 5	
		Carpus, . . . 1	
		Metacarpus, . . 7	
		Fingers, . . . 21	
Total, . . 50	 65	 241	 196

The greatest number belong to the upper extremity, 241
Then follows the lower extremity, ... 196
The trunk, ... 65
The head, ... 50

Total, . . 562

This proportion agrees quite with that obtained by Middledorpf[a]. In the statistics of Malgaigne[b], the fractures of the lower limbs exceed those of the superior. In adding together the three statistics, that of mine, of Middledorpf, and of Malgaigne, we get—

Fractures of the upper extremities, . . . 1318
„ lower extemities, . . . 1314
„ trunk, ... 418
„ head, ... 155

Total, . . 3205

Thus the total statistics do not confirm the opinion of Malgaigne, that fractures of the upper extremities are more frequent than of the lower. On the contrary, we see them exceeded in the other tables, though in so trifling a degree that we may assume they are equally frequent.

[a] Ibid., pp. 21 and 144.
[b] Die Knockenbrüche Deutsch, von Dr. Bürger, p. 16. Stuttgart: 1850.

From the numbers obtained in the surgical clinique at Erlangen during the space of thirty years, the frequency of fractures of the individual bones is as follows:—

The first place belongs to the radius,	75
Second, both bones of the leg,	62
Third, femur,	56
Fourth, fore-arm,	52
Fifth, ribs,	47
Sixth, tibia,	30
Seventh, skull,	29
Eighth, clavicle,	27
Ninth, fibula,	26
Tenth, fingers,	21
Eleventh, face,	19

Twelfth, humerus.
Thirteenth, ulna.
Fourteenth, patella.
Fifteenth, scapula.
Sixteenth, metacarpus.
Seventeenth, toes.
Eighteenth, vertebræ.
Nineteenth, pelvis, sternum, metatarsus.

Middledorpf obtained a different proportion:—Ribs, both bones of the leg, fore-arm, clavicle, thigh bone, &c. And Malgaigne the following:—Both bones of the leg, ribs, humerus, clavicle, thigh bone, &c. Of the fractures of the bones of the head, that of the parietal bone and the upper jaw are the most frequent; in the trunk that of the ribs; in the upper extremities that of the radius; in the lower extremities that of both bones of the leg.

Middledorpf having observed only one infraction (infractio ulnæ, in a lad of 14), we have 29:—

The clavicle,	9
The ribs,	9
The cartilage of the ribs,	2
The fore-arm,	5
The ulna,	4
Total,	29

They all occurred in young individuals. One case is remarkable for the uncommon disposition to infraction. A boy, six years old, of a tender constitution and slight bones, fell down and got an infraction of the clavicle. On the 28th April of the following year he fell again, and suffered from infraction of the right ulna, nearly in the middle of the bone. On the 26th July

the boy fell for the third time, when he had an infraction of the radius higher up than that of the ulna.

Fractures of the Head.—The fractures of the head prove interesting to the surgeon, inasmuch as they affect either the skull as the osseous covering of the brain, or the face as the hard base of the human features; not inasmuch as the individual bones are more or less frequently broken. Therefore, they may be considered in two divisions—as *fractures of the skull*, and *fractures of face.* The number of the fractures of the skull is 24; thus they are the $\frac{1}{23}$rd part of all the fractures, or if we count the fissures likewise, the $\frac{1}{19}$th part. Out of 15, the details of which are known to me, there were 5 of the parietal bone, 4 of the os sphenoideum, 3 of the frontal, 2 of the os temporum; in 1 case the sphenoid, the frontal, the os parietal, and the nose bones, were broken; and in another, fractures and fissures went through the sphenoidal, the parietal, the os temporum, the ossa nasi, and the upper jaw.

The fractures of the bones of the face were 19 out of 562, so they are $\frac{1}{29}$ of the total, of 15 of which I know the exact history; 5 were of the upper jaw, 4 of the under, 3 of the nose bone, 1 of the zygomatic, 1 of the vomer.

The lower jaw, which was broken four times, constitutes $\frac{1}{140}$ of the total number; in Middledorpf's statistics, $\frac{1}{451}$; in Malgaigne's, $\frac{1}{91}$; giving a mean of $\frac{1}{92}$. Thus in our statistics the fracture of the lower jaw is extremely rare, and does not at all confirm the assertion of Malgaigne, that it is the half of all the fractures of the face bones. With us it is only one-fifth of them.

Fractures of the Trunk.—*Fracture of the Vertebræ* was observed thrice out of 562 cases, so it forms $\frac{1}{187}$; according to Middledorpf, $\frac{1}{45}$; according to Malgaigne, $\frac{1}{168}$, giving a mean of $\frac{1}{133}$ of all fractures.

Fracture of the Sternum is to be found only twice in my statistics, therefore, $\frac{1}{281}$; with Middledorpf, $\frac{1}{89}$; Malgaigne had, out of the 2328 cases of the Hotel Dieu, not one; Lonsdale, 2 out of 1901, or $\frac{1}{951}$, or, in the mean of the three statistics, $\frac{1}{440}$. The two cases observed in the clinique of Professor Heyfelder are worth recording.

Case I.—K. B., thirty-three years of age, falling from a high tree, on the 28th February, 1844, on his back, suffered from a transverse fracture in the upper third of the sternum; a fracture of the processus spinosus of the third, fourth, and fifth dorsal vertebræ, a fracture of the lower end of the left radius, and also of the heel on the same side. The man complained very

much of the breast in the region of the fractured vertebræ, and of the left tarsus. He was bled to fourteen ounces, fomentations applied, and twenty-four leeches over the tarsus.

On the 3rd of March a bandage was put on the arm; on the 5th one on the foot, which, four weeks after, could be removed, a close examination proving that the fractured bones were completely united.

On the 11th of April the man could sit some hours out of bed; on the 15th he could walk with crutches. On the 10th of May he was dismissed cured.

Case II.—B., a man aged 40, after having gone through a typhoid fever, was attacked with necrosis of the sternum, combined with intolerable pain, and abscesses originating in the neighbourhood, with denuded portions of the bones, and the exfoliation of small sequestra. After some weeks, crepitation was observed by the patient and the surgeon, and a transverse fracture through the upper third of the sternum was detected. No accident had happened, and the mere movements of respiration had evidently sufficed to rupture the bone, friable and thin in consequence of the necrotic disease. Diastasis of the fragments was to be observed at every respiration. No disease of the lungs existed.

Professor Heyfelder, called in consultation, made a resection of the necrotic part of the sternum, by means of the osteotome, the chain saw, and Velpeau's scissors, the bone crumbling like freestone under the instruments. The piece removed was more than two inches long, and one and a half broad. The wound was covered with cerate spread on linen; the patient kept in a lateral position lying on the side.

The man recovered in a proportionately short time, the wound uniting by a hard resistant cicatrix, two little fistules remaining, discharging a healthy-looking matter. When they closed, an inflammation of the right sterno-clavicular articulation took place, which, some weeks after, ended in the formation of abscesses and the spontaneous elimination of the cartilage of the external end of the clavicle. The patient recovered entirely, and is able to do every work in the field[a].

Fractures of the Ribs were observed in but 47, $\frac{1}{12}$ of the total; according to Middledorpf, $\frac{1}{5}$; according to Malgaigne, $\frac{1}{10}$; in the mean, $\frac{1}{9}$ of all fractures.

One of the cases observed in the hospital at Erlangen is remarkable for the great number of broken ribs.

[a] T. F. Heyfelder, Resections und Amputations, page 120. Breslau: 1855.

L. L., a labourer, thirty-six years old, was overthrown by the giving way of a bank of earth. He was brought to the hospital insensible, where he died some hours afterwards. On post-mortem examination the following fractures were found: on the left side the third, fourth, fifth, sixth, seventh, eighth, and ninth ribs, were broken in two places; the tenth, eleventh, and twelfth singly: at the right side were double fractures of the second to the ninth ribs, and a single one of the tenth and eleventh; moreover, the ulna was broken in the middle of the shaft, and the olecranon was broken off.

This individual had thirty-seven fractures, including twenty broken ribs. The symmetrical distribution of the fractures between the two parts of the thorax, and the participation of all the ribs, with the exception of the first, prove the equal influence of a mighty destroying power.

Fracture of the Pelvis.—I find 2 out of 562, or $\frac{1}{281}$; according to Middledorpf, $\frac{1}{309}$; to Malgaigne, $\frac{1}{230}$; in the mean, $\frac{1}{202}$ of the entire.

Fractures of the Upper Extremities.—*Fracture of the Clavicle,* 27 out of 562, proves to be $\frac{1}{20}$ according to my statistics, or, if we add the infractions, $\frac{1}{13}$; according to Middledorpf, $\frac{1}{9}$; to Malgaigne, $\frac{1}{10}$; giving a mean of $\frac{1}{13}$, or $\frac{1}{11}$ if we add the infractions of this bone.

Of the *Fractures of the Scapula* I report 9 cases: they represent $\frac{1}{69}$ of all the fractures in my table; $\frac{1}{41}$ in that of Middledorpf; $\frac{1}{389}$ in Malgaigne; $\frac{1}{230}$ in the mean.

Out of the 9 *Fractures of the Shoulder-blade,* 3 were of the acromion; 6 of the body of the scapula.

Fractures of the Humerus, in 16 out of 562, form $\frac{1}{35}$ of the total; according to Middledorpf, $\frac{1}{36}$; to Malgaigne, $\frac{1}{3}$; or in the mean, $\frac{1}{17}$.

The *Fractures of the Forepart of the Arm* are, 142 out of 562, or, the infractions added, 151 out of 562, $\frac{3}{7}$ of the total sum. Of this number 52 belong to both bones; consequently, the *Fractures of the Antibrachium* form $\frac{1}{11}$ of the total, quite agreeing with the observations of Middledorpf and Malgaigne, of which the first fixes them to be $\frac{1}{10}$; the second, $\frac{1}{11}$ of all fractures.

The ulna breaks more rarely; for it alone 15 times out of our 562 cases; 9 times out of 243, according to Middledorpf; 35 times out of 2328, according to Malgaigne. Thus the fractures of the ulna form $\frac{1}{37}$, Heyfelder; $\frac{1}{27}$, Middledorpf; $\frac{1}{61}$, Malgaigne; giving a mean of $\frac{1}{41}$ of the total. 9 of my 15 cases are *Fractures of the Olecranon;* 6 of Middledorpf's; and 9 of

Malgaigne's 38. The proportional number taken of the three tables ($\frac{1}{18}$, Heyfelder; $\frac{1}{40}$, Middledorpf; $\frac{1}{258}$, Malgaigne) is $\frac{1}{126}$.

In one case we got a union of the fragments by fibrous tissue of one inch broad; in one, the case of a married woman seventy-two years old, the union was accomplished by callus and ossification after seven weeks, but only after two months were the movements restored to the articulation.

The *Radius* alone I find broken 75 times, $\frac{1}{7}$ of the total; Middledorpf, $\frac{1}{11}$; Malgaigne, $\frac{1}{14}$; in the mean, $\frac{1}{11}$. Out of my 75 cases, the fracture concerned the anterior third of the bone 56 times; out of the 23 of Middledorpf, 19 times: consequently, the fractures of the anterior third of the radius are to those of the other three-fourths of the bone as 75 to 98, or 3 : 4. Of all fractures, those of the anterior third form $\frac{1}{10}$ according to my table; $\frac{1}{13}$ to that of Middledorpf; and $\frac{1}{12}$ in the mean.

Fracture of the Carpus is to be found once; of the metacarpus, 7 times. Middledorpf saw the latter 10 times out of 286 cases; and Malgaigne, 16 times out of 2328. Thus they represent $\frac{1}{80}$ of the total, according to me; $\frac{1}{28}$, to Middledorpf; $\frac{1}{143}$, to Malgaigne; $\frac{1}{84}$ in the mean.

Fractures of the Fingers, 21 out of 562, form $\frac{1}{27}$ with me; $\frac{1}{16}$ with Middledorf; $\frac{1}{31}$ with Malgaigne; $\frac{1}{32}$ in the mean.

Fractures of the Lower Extremities.—The *Fractures of the Femur*, 56 out of 562, are $\frac{1}{10}$ according to my statistics; $\frac{1}{6}$, to Middledorpf; $\frac{1}{7}$, to Malgaigne; something more than $\frac{1}{7}$ in the mean.

One case deserves special mention.

A man, twenty-four years old, entered the University Hospital on the 31st of March, with a simple transversal fracture of the femur. On the twelfth day a plaster bandage was applied. On the 14th of May, or the forty-sixth day after his reception into the hospital, he was attacked with small-pox, which passed away mildly and regularly.

It was astonishing, in removing the bandage, in nine weeks after the accident, to find the fragments not united, though in no way inclined to dislocation. One must suppose the attack of small-pox had interrupted the union, at that period already advanced to a certain degree. By means of the plaster bandage the union was finished in four weeks.

Fracture of the Patella is rare, according to all statistics. Middledorpf saw 3 out of 313; Malgaigne, 45 out of 2328; I saw 13 out of 562. They form, consequently, $\frac{1}{104}$ in Mid-

dledorpf's statistics; $\frac{1}{52}$ in those of Malgaigne; $\frac{1}{93}$ in mine; $\frac{1}{60}$ in the mean.

Two cases of badly united transversal fracture of the patella were presented in the clinique.

A girl, aged 25, having endured a fractured patella, was treated by a bone-setter, who allowed her the use of the foot after four weeks. The fragments were united by a ligament of some inches in length. The girl happened to fall again, and the new-formed ligament was once more destroyed. This time she was received into the University Hospital at Erlangen; the leg was laid upon an inclined plane; sixteen days after, put into the apparatus of Dupuytren. Two months after, the girl was dismissed; the fragments were united by a new and shorter fibrous tissue, having on the exterior edge a thin osseous ridge.

A man, aged 40, entered the clinique, who a year previously had undergone a transverse fracture of the patella. He also had been treated by a bone-setter, who, in order to keep the fragments together, had surrounded the patella with an iron ring. The upper fragment, forming the third of the bone, was united with the lower one by a fibrous tissue, two inches long in the outstretched position of the leg. The movements of the limb were not hindered, except the power of going downwards.

The *Fractures of both Bones of the Leg* amount to 118 in my table, and so they form, quite agreeing with Malgaigne's observations, the fourth part of all fractures. Most frequently, both bones break together,—62 times among our 562 cases, which proves that the fractures of the leg form $\frac{1}{9}$ of all fractures, according to my statistics; $\frac{1}{8}$, to Middledorpf; $\frac{1}{4}$, to Malgaigne; $\frac{1}{7}$, in the mean.

Malgaigne says that fractures of the fibula exceed those of the tibia a great deal; my experience shows the contrary, the former amounting only to 26; the latter, to 30. The latter represents $\frac{1}{18}$ in my table; $\frac{1}{40}$ in that of Middledorpf; $\frac{1}{80}$ in that of Malgaigne; $\frac{1}{16}$ in the mean. That of the fibula are: $\frac{1}{21}$, Heyfelder; $\frac{1}{34}$, Middledorpf; $\frac{1}{22}$, Malgaigne; $\frac{1}{25}$ in the mean.

Fractures of the Tarsus are very rare, at least they are seldom recognised and noticed. I find 2; Middledorpf, 2; Malgaigne, 6; in the mean they form $\frac{1}{3}\frac{1}{0}$ of the total. That of the *Metacarpus* is rarer yet: in my table we count 2; in that of Middledorpf, 3; of Malgaigne, 3; so that in the mean they are $\frac{1}{400}$ of all fractures.

The Toes I found 5 times broken out of 562; Middledorpf, 4

times among 313; Malgaigne, 10 times among 2328; consequently, they are in the mean $\frac{1}{170}$ of the total.

Following the proportional numbers of the three sets of statistics, the frequency of breaking, as regards the different bones, is the following:—

Both bones of leg,	$\frac{1}{7}$	Tibia,	$\frac{1}{46}$
Femur,	$\frac{1}{7}$	Patella,	$\frac{1}{66}$
Ribs,	$\frac{1}{9}$	Metacarpus,	$\frac{1}{84}$
Fore-arm,	$\frac{1}{10}$	Mandibula,	$\frac{1}{92}$
Radius,	$\frac{1}{11}$	Olecranon,	$\frac{1}{128}$
Clavicle,	$\frac{1}{13}$	Vertebræ,	$\frac{1}{133}$
Humerus,	$\frac{1}{17}$	Bones of the Toes,	$\frac{1}{170}$
Cranium,	$\frac{1}{19}$	Pelvis,	$\frac{1}{202}$
Fibula,	$\frac{1}{25}$	Scapula,	$\frac{1}{230}$
Bones of the Face,	$\frac{1}{28}$	Tarsus,	$\frac{1}{300}$
Bones of the Fingers,	$\frac{1}{32}$	Metatarsus,	$\frac{1}{400}$
Ulna,	$\frac{1}{41}$	Sternum,	$\frac{1}{440}$

Art. XIII.—*Cases in Midwifery from Dispensary and Private Practice. With Remarks.* By T. Purefoy, M. D., &c., Lucan.

EIGHT CASES OF ARM PRESENTATION.

Case I.—In this case the fore-arm and cord presented without the os externum for a period of fifteen hours before the patient was first visited, when she was found weak and exhausted, and without any labour pains. There were tenderness of the abdomen, tympanitis, thirst, fever, with a dry and heated state of the vagina. Delivery was easily effected by turning the child; yet all the bad symptoms increased progressively until the fourth day, when the patient died.

Case II.—Mrs. H., in labour during thirty hours before visit: young, healthy, and well made. The left arm is completely protruded at the os externum, and much swollen, whilst the shoulder is firmly impacted at the brim of the pelvis. The pains are powerful; but there are not any alarming constitutional symptoms present. An opiate was given, and, when its effects were manifested, an attempt was made to turn the child, but in vain, as the introduction of the hand was prevented by violent uterine contraction; the opiate was repeated, sixty drops of the acetum opii having been given within the lapse of two hours. Sound sleep was induced; the operation again cautiously undertaken, which proved at

once difficult, tedious, and very painful to the patient, in consequence of continued active uterine contraction resisting the movements of the hand in utero, and so prolonging the operation for a period of nearly two hours. No unpleasant symptom followed until the third day, when indications of cerebral apoplexy arose, which yielded to free bleeding from the arm, purgatives, and the use of mercury.

Case III.—Mrs. H. again attended, under precisely similar circumstances; delivered by turning the child, which was still-born, as in the first instance, a considerable time having elapsed before she had assistance.

Case IV.—Mrs. H.—Arm presentation a *third time*. Thus, in three successive labours this unfortunate woman had an arm-presentation; in each the child was still-born, and probably might have been saved if she had timely assistance given her.

Case V.—Mrs. K., a labourer's wife, eighth labour; ill ten hours; left arm presenting, and protruded nearly as far as the shoulder; abdomen tympanitic; pulse small and rapid; patient complains of unremitting pain; expulsive efforts frequent, unavailing, and exhausting. In order to soothe and sustain the patient, allay fruitless uterine efforts, and so avert impending evil, thirty drops of the acetum opii were at once given; and as this dose was insufficient, twenty drops were shortly afterwards administered, when the child was turned without any difficulty, and subsequently expelled by the natural efforts; the placenta followed in a short time. The uterus contracted well, yet the patient seemed to be scarcely relieved from her sufferings, and continued to complain, for at least an hour after delivery, of severe pain just below the epigastrium; after this period it was less complained of, but pain at the occiput became troublesome. After the lapse of a few hours the patient slept a little, and was quieter, but during sleep had involuntary tremors of the left arm and leg, which would cease upon sprinkling the face with cold water, and applying a stimulus to the nostrils. The bowels were duly acted upon by aperients, but the weak and exhausted condition of the poor woman completely forbad the employment of more active treatment. She lingered for two days in this state, made little complaint, and suddenly expired on the third day, after having discharged a large quantity of blood from her stomach, in the act of vomiting.

No post-mortem examination could be obtained.

Case VI.—A. M., a labourer's wife, in labour for several hours, arm presenting, and the shoulder wedged in the brim

of the pelvis, the waters having been drained off for some time. An opiate having been given, the child was turned, and delivered with much difficulty. The placenta was duly expelled; slight inflammatory symptoms followed, but yielded to a mild antiphlogistic treatment.

Case VII.—A poor woman who had been in labour for a considerable time (exact period not known) sought for medical aid when nearly in a state of complete exhaustion. The arm presented externally, and was much swollen; however, turning was effected without delay or trouble; yet symptoms of low inflammation speedily followed, and the poor sufferer sank exhausted in a few days.

Case VIII.—Mrs. F., aged 49; tenth child, the youngest aged five years. During these five years she has suffered much from chronic rheumatism, which completely deprived her of the use of her limbs, so that during pregnancy she moved about by the aid of crutches. Labour had commenced some hours before visit; the os uteri is now fully dilated; cord prolapsed and pulseless; shoulder presenting. A full opiate having been given, the child was in due course turned, and easily delivered.

This lady made a good recovery; remounted her crutches in good health and spirits, and, for aught I know, may have again increased the number of her offspring.

REMARKS UPON THE PRECEDING CASES.

In cases of arm presentation assistance must be given early and judiciously, in order to secure the life of the infant, and to rescue the parent from all the dangerous consequences of impracticable labour, when unduly protracted. I mean impracticable through the mere natural efforts, since I have never witnessed an instance of "spontaneous evolution," in which the position of the child became altered without any artificial aid, so as to be subsequently expelled by the unassisted uterine efforts. In Case I. the necessary aid was not procured until the labour was so long protracted as to induce fatal exhaustion, and thus predispose the patient for the fatal uterine inflammation, which, if it did not precede, immediately followed upon delivery.

The second case affords a remarkable instance of an arm-presentation occurring in three successive confinements. Now, if allowed to speculate, or to indulge in hypothesis, in such matters, may we not suppose that this woman, in consequence of having her mind unduly occupied with the thoughts of her misfortune in having a cross-birth, and losing her child, was

thus, through the operation of a strong mental impression, rendered more likely again to become the subject of this departure from the ordinary course of nature?

Be this as it may, we see that where preternatural labour once occurs, it is likely to happen again, and I doubt not it might be proved from a registry of such cases, that preternatural labour has occurred—in the majority of instances—more than once in the same individual. The usual practice of giving a full opiate was followed here, and although profound sleep and stertorous breathing were induced, yet most powerful uterine action was aroused upon the introduction of the hand, the uterine contractions continuing, during the efforts made to turn the child. What advantage, then, in giving opium to arrest uterine contraction, if this contraction can be excited in a powerful degree, even whilst the patient is evidently narcotised? Although I would not rashly proceed to turn during active uterine contractions, without having previously endeavoured to allay uterine action by the use of opium, or of other appropriate means, as bleeding, or the use of tartar emetic; yet experience proves, that whilst the nervous system generally is brought under the influence of opium, the organic contractility of the uterus (in many cases) will be found in active operation. There can be no doubt as to the tranquillizing influence of opium upon the cerebro-spinal nerves generally. And in this way the opiate will obviously, though in an indirect way, facilitate the operation of turning. But, from the fact here stated, it would seem that the uterine nerves, which are not altogether supplied from this source, but also from the sympathetic nerves, are not equally under the sedative influence of opium. Hence the patient may be narcotised, and yet, the organic sensibility of the uterus remaining, it may be excited to make continued and powerful expulsive efforts, by the powerful stimulus of the hand introduced within its cavity.

We know that in cases of profound apoplexy the heart will continue to act for a considerable time, and that the functions of other vital organs will continue for some time unimpaired also, under such circumstances,—a fact explained by considering the source from whence these organs receive their nerves. Whilst some authors recommend opium as a remedy in uterine hemorrhage occurring during child-birth, Dr. Beatty states that opium will cause flooding if given at this period, by preventing efficient uterine contraction. All accoucheurs agree in opinion, that this drug may be used with great benefit during the progress of, and subsequent to, the

completion of labour. Since, then, opium is an agent mighty to do good or evil, it is most important that we should have established data to guide us in the use of this medicine during the progress and after the completion of labour.

During the progress of labour opium may be advantageously employed to soothe the system, allay morbid irritability, suspend weak, inefficient, and harassing pains, which tend merely to weary the sufferer and induce exhaustion, being clearly indicated by their inefficiency in advancing labour, and their efficiency in producing restlessness and exhaustion. A few minutes' sleep, even artificially induced under such circumstances, may serve to bring a lingering and hazardous labour to a speedy and favourable termination.

Violent retching, colicky pains of the bowels, or similar accidental symptoms which tend to interfere with the natural progress of labour, may also find in opium an appropriate remedy.

Uterine hemorrhage occurring during the progress of labour can seldom, if ever, be appropriately treated by opium alone. Extreme exhaustion, induced by flooding, at any period of labour, may call for the free use of this medicine; but it is to be ever borne in mind, that here we use this medicine as a remedy for exhaustion, not as a remedy against hemorrhage; not to prevent loss of blood by flooding, but to avert the imminent danger consequent upon excessive loss of blood.

Hemorrhage coming after the birth of the child, before the complete separation and expulsion of the placenta, or after its removal, and whilst the uterus is yet enlarged and imperfectly contracted, requires great skill and promptness of action to arrest it successfully. I do not think that opium may be safely relied on in such cases. Efficient uterine contraction is the only remedy upon which we may rely for safety, and we dare not trust to opium to effect this. It has been stated that post-partum hemorrhage is often induced and kept up by morbid irritability and inefficient contraction of the uterus, evils to be remedied by the anodyne effects of opium. This state of things is indicated by frequent returns of very distressing pains, faintishness, and the discharge of clots and fluid blood. I have fairly tested the use of opium here; it failed in its anticipated results so entirely, that I could not feel justified in again pursuing a similar plan of treatment. Doubtless, flooding of a very formidable character does now and again occur, apparently as the result of undue irritability, and consequent irregular and inefficient action of the uterus.

But bearing in mind the axiom, that efficient uterine contraction is the remedy for undue uterine hemorrhage occurring after delivery, I prefer the following plan of treatment: the keeping up well-directed steady pressure with the hand over the uterus from above downwards, in the direction of the cavity of the pelvis, if need be, for hours; free exposure to cold air; the application of cold water in the usual way, aided by the infusion of ergot of rye in some cases, and, if these fail, the introduction of the hand, and emptying the uterus of clots, may be indispensable.

From these brief remarks it would appear that opium is useful, first, at the commencement, and during the progress of labour; secondly, after the birth of the child; and thirdly, after the expulsion of the placenta. It is a fit and useful agent in quieting what are named "spurious or false pains," often affording prompt relief of unavailing suffering, and promoting directly the favourable progress of labour.

In the excessive exhaustion which invariably follows upon immoderate loss of blood, it acts most favourably, by quieting restlessness and anxiety, and inducing sleep, so necessary to the preservation of life under these circumstances.

From the fifth case we learn the very important lesson, that the effects of labour upon the general system, rather than its particular stage or duration, should guide us in the all-important decision as to when we are to use active interference. Here we find a labour of only ten hours' continuance, accompanied by alarming symptoms, which distinctly forebode the approaching fatal result. We further learn that the progress and termination of every case of labour will be much influenced by the state of the patient's health previous to her confinement. Doubtless, this poor woman was in ill health previous to the occurrence of labour. I have ever found the "epigastric pain," so distressing in this instance, to be a formidable symptom, and have known it to precede fatal convulsions; in this case it would appear to have indicated hyperemia of the mucous membrane of the stomach. The transference of pain to the occiput, probably the result of congestion at the base of the brain, was an unusual occurrence, indicating the strong tendency which exists during the puerperal state to the formation of local congestions, often fatal in their issue. The condition of this patient from the first visit was such as to contra-indicate any very active interference after delivery had been completed; due attention was paid to the state of the bowels, and an endeavour made to support the strength by appropriate treatment.

The very favourable termination of the eighth case was more than could have been anticipated, in considering the crippled and helpless condition of the patient. However, the capacity of the pelvis having remained undiminished, the rheumatic affection of the joints opposed no hindrance to the progress of labour, nor in anywise interfered with the favourable progress of her confinement.

As I have had much more ample experience in the use of opium as an anæsthetic agent in the practice of midwifery, than of chloroform—its rival in the field of obstetric science—I shall not venture to trespass upon the readers' patience further than to state that I believe the latter to be an agent of vast importance in the treatment of such cases as I have just alluded to, and perhaps under certain circumstances to be preferred; but that I am not yet so fully convinced of its superior efficacy as to make it a substitute for, or prefer its aid to, that of opium in practice generally.

Art. XIV.—*Lithotomy Simplified.* By Josiah Smyly, A.B., Surgeon to the Meath Hospital.

I have been so pleased with the result of the operation for removing the stone from the bladder, advocated by Mr. Allarton, that I have been induced to publish the following case as a proof of the simplicity and safety of it.

I would recommend the "median incision" in many cases to which lithotomy (by the lateral incision) or lithotrity are now considered peculiarly suited. Children have been cut for stones so small that the minute foreign body has been swept out with the first gush of urine, and escaped unnoticed; it is unnecessary to say with what facility such stones could be expelled through an opening in the membranous portion of the urethra; but should the surgeon, previously to operating, be unable to measure the size of the stone, and upon opening the urethra find it too large for expulsion, he will, owing to the dilatability of the neck of the bladder, have no difficulty in introducing a lithotrite and breaking the stone in fragments.

Lithotrity, so suited to the adult, is not even in the most healthy person, and under favourable circumstances, free from danger. Fragments of the broken stone occasionally become impacted in the bladder or in the urethra, and excite inflammation in these structures, or, by penetrating them, may give rise to extravasation of urine; and not unfrequently, after the

mischief has been done, an incision is made to extract a fragment through which, if it had been made in the first instance, the whole of the detritus might have been removed.

Again, many cases now judged unfit for lithotrity from enlargement of the prostate gland, or from chronic cystitis, or from a constitution broken down by long-continued suffering, might be relieved of a large stone at one sitting, by lithotrity performed through a "button-hole" opening in the perineum, the detritus being either washed out through a large canula, or extracted by a narrow-bladed forceps.

When the patient is under the influence of chloroform, the pain of the small incision is not to be taken into account, and the inconvenience of it is more than counterbalanced by exemption from the preparatory treatment of dilating the urethra, to enable it to admit the lithotrite, and also by the ease with which fragments can be expelled or extracted through an opening in the perineum, instead of having to pass along the whole length of the urethra.

The following case is one in which lithotrity could not be practised, as the patient had organic stricture of the urethra of long standing, and which was so closely contracted as to admit but a very small-sized instrument: the patient was a bad subject for lithotomy; his having the stricture decided me in making the "perineal section."

Meath Hospital.—August, 1858. Michael O'B., aged forty-four years, a plasterer; muscular, rather fat; florid complexion. For the last fifteen years he has had symptoms of stricture of the urethra, for which he has sought relief at various times, at different hospitals and dispensaries.

Fourteen weeks ago he was suddenly seized, when making an exertion, with violent pain referred to the neck of the bladder, accompanied by frequent desire to pass water. He was admitted into an hospital in the city, but dismissed again in a few days, as the nature of his case was not discovered. I mention this because there was obscurity about it, and it was not until after frequent examination with a silver catheter, and having often washed out the bladder with tepid water to relieve the chronic cystitis, that I at last got faint indications of the presence of a stone.

August 15th. The sensible signs of the existence of a stone are more distinct; it seems to be small and impacted at the neck of the bladder.

August 20th. Assisted by my colleagues, I introduced Syme's grooved sound into the bladder, and having the fore-

finger of my left hand in the rectum, with a French bistoury in my right, the back towards the rectum, I plunged its point down to the staff entering it into the perineum half an inch in front of the anus, and, carrying it forwards, made an incision to the extent mentioned, viz., half an inch; on withdrawing the knife I introduced a long probe into the bladder along the groove of the staff, which was then withdrawn; the left forefinger, being now disengaged from the rectum, was well oiled; I very gradually insinuated it into the bladder, and was surprised at the facility with which the prostatic portion of the urethra yielded to steady pressure. I now felt the stone, and, judging that it was quite too large to come out without assistance, I grasped it with a small forceps and commenced extraction; not finding it advancing, I enlarged the wound towards the left side, and in so doing unfortunately laid open an artery, which bled pretty freely. The stone was then got out with ease: it was of a prismatic shape, and measured one inch and a half in its longest, and one inch in its shortest diameter, it weighed, when perfectly dry, half an ounce. The bleeding was soon controlled; the "canule a chemise" was introduced through the wound; and the patient carried to his bed. One hour after the operation he had a rigor, and was given an opiate. I should have mentioned that my patient was under the influence of chloroform, and unconscious of suffering pain.

21st. The canula was removed.

22nd. No unfavourable symptom. The urine flows freely by the wound; the patient was changed to another bed.

September 3rd. The urine flows partly through the penis; no doubt the existence of the stricture has prevented its coming through the urethra before this.

7th. Commenced treating the stricture by leaving a gum-elastic catheter in the urethra; No. 5 was firmly grasped by the stricture.

18th. The patient has been out of bed for some days; he feels so well that he has asked permission to leave the hospital and return home.

Dismissed cured, twenty-ninth day after the operation.

I cannot conclude this case without again acknowledging my obligation to Mr. George Allarton's valuable and important pamphlet, entitled, "Lithotomy Simplified."

Art. XV.—*Remarks on the Separation of the Retina from the Chorioidea.* By Dr. A. von Graefe. Translated from the German[a] by James G. Hildige, M. D.

The separation of the retina from the chorioidea by fluid has been a long time known in ophthalmology, and described under the most varied names, such as "retina tremulans," "hydropisie chorioideenne," "sous-retinienne," &c. Indeed, when a high degree of this disease is developed, it is not necessary to have recourse to the ophthalmoscope in order to perceive the wavy folds of the retina pressed forward in the posterior part of the eye; but it was this instrument which first enabled us to detect the more trifling grades of the disease, and which gave us an insight into its nature.

When the separation is partial, the inferior part of the bulb is included in it, to which I have found only four exceptions. In one, the sac lay directly external to the optic entrance, in two others it lay superior and external, and in another it lay almost superior; in two of these cases the disease was caused by an injury. The separation, when it progresses, extends in all directions, commencing at the inferior part of the sac which the detached retina forms; it seldom extends internally and superiorly until the latest period of the disease, in which directions I have often found the retina still adherent, even when all the other parts were detached, and stretched in a funnel-shaped fold from the entrance of the optic nerve in the direction of the ora serrata. In this manner is explained, also, how the small degree of sensibility to light which such patients still possess refers to the external and inferior part of the field of vision.

The appearances which the patient remarks at the commencement of the disease are the following, which are present in most cases:—A tolerably well-defined dark cloud is formed in the superior part of the field of vision, without the slightest sensation of pain; objects seen by the patient appear bent, or oblique or crooked, throughout the whole field of vision, but particularly at its edges; sometimes it is only a single part of objects which presents an unnatural form or curve. The black cloud develops itself quickest inferiorly, and reflects in the greater number of cases a blood-red appearance, which in a few days becomes yellow, and then loses its colour altogether: in some patients, however, the original colour remains. The

[a] Notiz über die Ablösung der Netzhaut von der Chorioidea. By Dr. A. von Graefe.

dark appearance usually reaches its utmost limits in a few days; but when the course of the disease is protracted for a considerable period, it then happens that it proceeds forwards intermittently, with periods of quiescence between each step. When the middle portion of the retina is spared, the power of vision is tolerably well preserved. I have seen patients with exquisite forms of this disease, who, with considerable restriction of the upper portion of the field of vision, were in a state to read the finest print, but as soon as the parts of the retina round about the optic entrance were included in the separation, all power of recognition failed, and the sensibility to light became totally destroyed. When the superior border of the sac infringes on the entrance of the optic nerve, the state of vision is then very varied: we find sometimes in this case sharp sight in the centre of the field of vision, when the neighbourhood of the macula lutea is intact, even when the parts neighbouring on the inferior border of the optic entrance are detached. In most of such cases, however, as the superior border of the sac generally lies horizontal, the macula lutea is also implicated, or, on account of its contiguity, is drawn in, in the secondary alteration (which I shall describe presently). Accurate perception is then destroyed, and the patient, when he wishes to use the affected eye, directs the axis of vision not *at* the object, but *over* it, and hemiopia takes place because the superior half of the field of vision fails. It frequently happens that, under the above-mentioned conditions, only a weak degree of vision is present externally and inferiorly, and this is explained either by the great extent of the sac on both sides of the optic entrance, or by the further advanced secondary alteration.

I have often observed cases in which the retina was detached close under the optic entrance and at both sides of it as high as the superior part; but where a certain portion, exactly over the optic entrance, was still adherent, there was then still present a weak degree of vision, which totally fails when the retina is altogether detached from about the optic entrance, although it may be adherent in considerable extent at its periphery, and present apparently normal texture. Absolute amaurosis can, however, be also present on account of the secondary alteration, even when the whole of the retina in the neighbourhood of the optic entrance, and the half of the superior part, is adherent. This occurs, comparatively speaking, very seldom, or only when atrophy of the bulb is present. I believe it to be necessary that these facts should be pointed out, because they are not without importance, in respect to the con-

veyance of the nervous impressions in the direction of the optic entrance.

The next question which interests us in a physiological point of view is, whether the detached retina be perfectly dead, with regard to its specific sensibility. It appears to me that this is not the case in the first period of the disease, for the sensation of a dark cloud, or of a red appearance, corresponding to the seat of the disease, is palpable proof that a susceptibility to impression yet remains. At a later period the detached retina loses all sensibility to either external or internal irritation, so that the patients declare they have no longer the sensation of dim vision, but that they have no vision whatsoever. I have never seen a detached retina at an advanced period of the disease recover its sensibility; so that the unmistakable improvement which results from treatment is by no means to be attributed to alteration in the detached parts of the retina, but solely to alteration in the neighbouring parts. The appearance of crooked and oblique vision is explained partly by the secondary alteration in the retina, and partly by the detachment itself. The first refers to the frequently occurring metamorphosis in the whole extent of the field of vision; the latter, on the other hand, to the exquisite optical delusions corresponding to the boundaries of the sac, by which objects appear broken off in the middle, or vanishing and reappearing in all directions, bent in a serpent or zigzag form. This arises, I believe, from the sac lying before parts of the retina which are still capable of conveying the nervous impressions. The light passes through the sac, takes the colour of the fluid which is contained in it, and, according to the alteration of position of the same, is refracted in a very varied, and naturally in a very irregular manner.

The retina is distinguished objectively by the blue or grayish-blue light which is reflected from it, but particularly by the broken appearance of the vessels as they are shortened and elongated during the movements of the eye. One can see at all times, by attentive examination, the folds of the membrane, and indeed very varying fluctuation or tremulous movements, according to the extent of the disease. The colour is also exceedingly varied, according to age, individual circumstances, and the manner of illuminating the eye. I have only seen detachment of the retina three times of a blood-red colour. In very old cases the sac is sometimes perfectly colourless, and distinguished only by the obliterated vessels, which then resemble fine black lines, presenting here and there a sort of bent or broken appearance. The boundary line of the sac is

mostly horizontal, or directed from outwards and upwards, inwards and downwards, on which account the external part of the field of vision is, comparatively speaking, in considerable extent, preserved. Exceptions from this, however, occur tolerably often, and of such a kind that the boundary line represents a curve sunk in the middle and raised up at both sides, like the profile of a saddle. This occurs frequently, and has been already pointed out above, when the separation has reached the optic entrance, which sets a mechanical obstacle to its further progress. It then rises up at both sides, whilst that portion lying immediately over the optic nerve remains intact. I believe that its limits are perfectly sharply defined towards the adherent parts of the retina, and only appear sometimes variable and uncertain on account of the hanging over of the retinal sac. On the other hand, this line does not by any means indicate the boundary of the healthy retina, for we will see presently that the neighbouring parts frequently sustain secondary alterations. This last point also explains that the phenomena of vision do not always stand in unconditional *rapport* with the detachment of the retina, but, on the contrary, the disturbance of vision is frequently further extended than one might suspect from the extent of the disease.

In the parts neighbouring on the affected places, we find retinitis tolerably frequent, which is here indicated by the development of very minute insular-formed spots, consisting of exceedingly fine loops of vessels, as well as of fine granulated whitish or reddish-white exudation. At first I took these uncommon minute rosy spots for the result of ecchymotic exudation: post-mortem examination, however, corrected me of my error. Under the microscope they appear like a reddish-white film, resting on the retina; and with a little stronger magnifying glass they appear as aggregations or convolutions of exceedingly fine loops of vessels, united into papillæ or cauliflower-like excrescences, which project slightly over the inner level of the retina. I have never seen similar alterations on the separated parts themselves, on the other hand; they are developed frequently while the case is under observation, and appear close to the border of the sac on the adherent portion of the retina. I consider them as the expression of a reactive inflammation, which, when a high degree of it is present, always couples itself with iritis.

The further progress of this disease is generally such that the whole retina is separated from the chorioidea, and is stretched, in the form of a funnel, between the optic entrance and the ora serrata. Soft cataract, and often cataracta dehis-

cens, which develop themselves remarkably quickly, and progressive absorption of the vitreous humour, which is sometimes, but not always, filled with membranous opacities, form at a later period almost constant sequelæ to the more intense degree of the affection. On account of soft cataract originating in this manner, we must always be careful to seek for the existence of a detachment of the retina in such cases, particularly in youthful individuals, the more so as frequently, when it is present, the patient is still sensible to light. If the sensibility be more developed inferiorly than superiorly, and if it be altogether insufficient, we can then, almost with certainty, infer a detachment of the retina. The examination of the patient must be conducted in a dark room, with the aid of a lamp. Patients who are affected with cataract, besides the affection of the retina, perceive the light of the lamp always at the furthest relative distance best when it is held very low. That the same patients—when the central portion of the retina has lost altogether its capacity of conducting, the superior and internal part, however, being still sensible to light—can perceive the light of a lamp held straight before their eyes, although, when the refraction is normal, none of the rays of light pass through the pupil to the above-mentioned portions of the retina, is explained by the dispersion of the rays, caused partly by the cataract, and partly by the slightly transparent tunic which encircles the bulb.

In most cases we can also infer that the characteristic disturbance of vision caused by the detachment of the retina, was present long before the formation of the cataract; the latter takes place usually several months, sometimes years, after the commencement of the original disease.

Chronic iritis, which breaks out frequently in company with the still increasing inflammation of the retina, as above mentioned, influences the appearance of cataracta accreta; but without the occurrence of iritis this kind of cataract has the peculiarity of shrivelling and drying up, and, in an advanced stage, of exhibiting, almost constantly, precipitates on the internal surface of the anterior capsule. These facts explain why amaurosis is so frequently present in such forms of so-called capsulo-lenticular cataract on one side, or in cataracta accreta on the other. In the second eye, where there is no cataract, one finds sometimes separation of the retina; much more frequently, however, opacities of the vitreous humour; sometimes both together. Those eyes affected with cataracta accreta generally become soft and atrophied, to a considerable extent, in consequence of the detachment of the retina.

With regard to the nature of the fluid contained in the sac, I can say nothing decided, on account of the lack of post-mortem examinations on the subject. The rapid occurrence of the disease; the red appearance seen by the patient, changing at a later period into a yellow colour; the coincidence with hemorrhage into the vitreous humour,—all speak in favour of its occurrence by hemorrhage. Indeed, we cannot doubt its occurring in this manner in those cases where a blood-red colour of the sac is established by the ophthalmoscope; on the other hand, it might be somewhat doubtful at the present to bring forward this as the sole cause of the disease. It has certainly nothing to do with an inflammatory exudation, for all inflammatory phenomena are wanting originally, both in the external and internal parts of the eye, and present themselves at a later period, long after the commencement of the disease, in the form of the already mentioned reactive inflammation. Serous effusions, however, could, like hemorrhages, be almost instantly formed, on account of the very great vascularity of the chorioidea.

The causes of this disease speak decidedly in favour of its occurring by hemorrhage from the chorioidea. Patients in general attribute it to the same causes as those which produce effusion of blood into the vitreous humour; sclerotico-chorioiditis is, however, in many cases, though not in the greater number, present.

Of the predisposing causes we do not know much: in only two cases the patients were affected with hemorrhoids, which, however, out of sixty cases does not justify one in drawing a conclusion. On the other hand, in five cases a decided hemorrhagic diathesis was present, particularly copious hemorrhages from the nose. I witnessed the last of these cases in Professor Schönlein's clinique. The patient was exhausted by repeated hemorrhages from the nose, which resisted all treatment, and hemorrhages from the kidneys, as well as ecchymotic spots on the skin, were also present; the sudden occurrence of amaurosis was explained by the separation of the retina from the chorioidea on both sides. Although in this case there was every reason to suppose that the disease was caused by a hemorrhage, yet the ophthalmoscope did not show a blood-red colour, but, on the contrary, quite a natural one. This, however, proves nothing against the sanguineous contents of the sac, as it is to be inferred, *a priori*, that such contents, according to circumstances, can induce a very varied tinge. It would have been of much importance in this case to have made a post-mortem examination; it was not, however, permitted by

the relatives. I once saw detachment of the retina present at the same time with a number of constitutional disturbances, which followed on the suppression of a plica polonica, with which the patient had been affected for many years. This disease does not occur very frequently: in 1000 cases of amplyopia it was met with sixty times. It was remarkable that it occurred very seldom (in seven cases) on both sides. On the other hand, sclerotico-chorioditis posterior, with opacities of the vitreous humour, was often observed. In the glaucomatic process, as well as in extensive alteration of texture, occurring solely in the retina, it appears very seldom as a complication.

Art. XVI.—*On the Anatomy of an Ovarian Tumour.* By Humphrey Minchin, M. B., Physician to the Hospital of the North Dublin Union.

The subject of ovarian tumours has, during late years, occupied a good deal of attention, and the researches of clinical and pathological observers have tended in no small degree to the establishment of enlarged and improved views regarding the nature, origin, and issue of these affections. The development of general principles in every department of medicine is gradually attained by the accumulation and comparison of isolated facts; and we justly recognise the importance of carefully observing and noting every new case, with a view of comparing its several features with those of the mass of similar cases already tabulated and classified. It is from a consideration of this kind, rather than from the affectation of being able to throw any new light upon the pathology or treatment of ovarian tumors in general, that I have been induced to lay before the profession the following rather imperfect history of a case which came under my observation a few months ago.

Mary D., aged 71, was admitted into the hospital wards of the North Dublin Union on the 2nd May, 1858, with the following symptoms: Diarrhœa; occasional vomiting; thirst; extreme prostration; drowsiness approaching to coma; cold extremities.

On the third day she had rallied pretty well from the state of stupor and exhaustion under which she laboured on admission; her mind, however, was at this time so much confused that she was unable to give a definite or connected account of her previous history, and all that could be ascertained from her was, that she was suffering from a pain in the left iliac region, to which she had been subject "off and on" at irregular

intervals for a great many years. The body, generally, was much emaciated; the abdomen enormously enlarged by what she called an "old dropsy," but which was easily recognised on examination to be a very large tumour. There was no dysuria, and the urine, which was voided three or four times daily, was high coloured and ex-albuminous. No swelling of the feet or of the face; chest apparently sound.

In about fourteen days after admission she sank from exhaustion, apparently induced by the diarrhœa.

A few days afterwards I obtained from a female relative of the deceased the following history of the case. It appears that, about thirty years previously, during her confinement of her fourth child, she was suddenly seized with a deep-seated pain in the left iliac or inguinal region. Her labour, however, was happily terminated, and she made a good recovery, being able to go about in the usual time. But the pain soon returned, and came on at such frequent intervals that she soon became reconciled to its continuance (for it was almost constant at this period); but while she felt convinced it would sooner or later be the occasion of her death, she derived some consolation from the reflection that she had the satisfaction of knowing where the blame was to be attached,—in fact, the impression that the midwife had inflicted some grievous injury, while attending her, could never be removed from the minds of the patient and her friends. In this not very charitable philosophy the narrator appeared fully to coincide. About three months after her confinement she perceived a tumour in the middle of the hypogastrium, small and movable, free from pain, except when pressed upon, when the pain extended towards the left groin, in the direction of the original soreness. The tumour increased slowly and steadily, and in about three years the abdomen was as large as at the full term of gestation. Her general health was not impaired during that time; however, as she felt the size of the abdomen to be a great inconvenience in her ordinary avocation, she was induced to seek the advice of an old woman, who, at once "diagnosing" a dropsy, recommended her to drink one or two glasses of gin occasionally, and she considered that this remedy was of great use to her, as the belly, she thought, did not for a long time afterwards undergo any increase in size; she, therefore, continued to follow the old woman's directions strictly. About ten or twelve years later, the abdomen having at length become much larger, she applied for admission into one of the hospitals in this city, where she was advised to allow herself to be tapped; but to this she would not submit. About five years before her death her strength began to fail; she had

much difficulty in moving about, and was obliged to maintain the sitting posture during the greater part of the day, with her feet raised on a high stool, that the thighs might better support the weight of the abdomen; she now suffered every evening from numbness of the legs, with some œdema of the feet and ankles, but these symptoms usually subsided after a few hours of rest in the horizontal position. Her appetite remained good, and her digestion continued to be very regular up to a late period of her life, when she suffered from occasional constipation, with scanty secretion of urine, for which she had recourse to castor-oil and gin-punch. During the thirty years that she carried the large tumour, even to the advanced age at which she was seized with the symptoms first described, she never felt really ill, her only sufferings having been those I have mentioned. I could not ascertain that she ever had an attack of peritonitis, and I was informed that she never had hemorrhage.

She had been a person of large frame, very robust constitution, and cheerful disposition.

The body was examined in eighteen hours after death.

On opening the abdomen by the usual mesial incision, it was found that the tumour was firmly adherent to the abdominal wall anteriorly, this adhesion extending from a short distance below the umbilicus upwards very nearly as far as the epigastrium, and laterally for about six inches on each side of the incision. The peritoneal lining of this part of the abdomen was exceedingly firm and strong, being nearly a line in thickness, while the muscular parts of the wall were pale and much attenuated. On breaking through the condensed areolar tissue which formed the bond of connexion between the tumour and the wall, and throwing back the flaps so as to expose the whole front of the tumour, this latter presented an appearance not very unlike an enormous gravid uterus, concealing from view all the abdominal viscera. The tumour appeared to have an elongated, oval shape, and extended obliquely upwards towards the right hypochondrium, bulging forwards considerably as it ascended, so as to form a remarkable prominence at its upper extremity, at which part, and for about one-third downwards, a distinct fluctuation of its contents could be felt; while the middle and lower portions were firm, solid, and elastic to the touch. The anterior surface was uniformly smooth and white, its peritoneal covering having undergone a process of induration and thickening similar to that observed in the layer lining the corresponding part of the abdominal wall.

The lateral and posterior parts of the mass were quite free

from adhesion to any of the viscera save the uterus, which organ was firmly incorporated with the back of the tumour at its lower part. The removal of the mass from the body, for examination, was effected by turning it forwards on the thighs, and merely cutting through the elongated and attenuated vagina, along with some vessels and areolar tissue. The bladder, small and contracted, was left in situ. This viscus, as well as the rectum, appeared to have sustained no displacement.

The tumour on its lateral and posterior aspects exhibited a very irregular outline, being compressed by large, firm, fibrous bands, which crossed in various directions, and through whose interstices projected large sacciform masses. Of these fibrous sacs, there were seven or eight, and their size averaged that of a large fœtal head. When cut into, they presented a coarse fibro-areolar structure, of very firm consistence and yellowish white colour, with numerous large sinuses or cavities from which flowed a dark reddish serous fluid. On cutting more deeply into one or two of these projecting masses, towards the centre of the main tumour, the tissue appeared softer and less fibrous, breaking down readily into an opaque yellow, semifluid matter.

An incision into that part of the mass which had been situated towards the right hypochondrium gave exit to nearly a gallon of fluid of the same colour, mixed with abundant flocculi, having the appearance as of coagulated albumen. The evacuation of all this fluid, however, caused but a slight diminution in the bulk of the tumour. The interior of the sac was paved with numerous granular nodules or tubercular projections, smooth and firm to the feel, and varying in size from that of a pea to that of a small walnut; these nodules, when cut into, appeared to be filled with a gelatinous substance, of semifluid consistence.

The anatomical relations of the tumour to the pelvic viscera were interesting, and presented some difficulty when we tried to reconcile the appearances found on dissection with the history of the early symptoms. On the *back* of the pelvic part of the tumour was situated the uterus; this organ being spread out, thinned, and identified so closely with the substance of the diseased mass, as to be with difficulty recognised at first; a careful dissection, however, showed that what appeared now as the posterior free surface of the uterus was truly the *front* of this organ; in fact, the tumour, having contracted an intimate adhesion to the back of the uterus, had become rotated on its vertical axis, carrying that organ completely round from the front to the back. This appeared evident from the fact that on the posterior and *right* side of the tumour was found

the left ovary, this organ occupying such a position with respect to the folds of the broad ligament and to the Fallopian tube, as could not be reconciled with the supposition that it was the proper ovary of that side. The Fallopian tube was easily traced from the cornu of the uterus to the terminal fimbriæ. This tube was much elongated, but the ovary was natural in size and structure. The *right* tube likewise could be traced from its corresponding uterine horn, but, instead of floating loosely, as did the tube of the opposite side, it passed in a circular direction round the *left* side of the tumour, in whose substance it was slightly imbedded, till it reached the anterior surface, its fimbriated termination being situated a few inches to the left of the anterior mesial incision. The uterine cavity was enlarged; its lining membrane smooth and quite continuous with that of the vagina, not a trace of an os, or lip being discernible. To the posterior wall, close to the fundus, was attached a vascular polypus of about the size of a filbert. The thickness of the uterine wall at its inferior part was a quarter of an inch; near the fundus it was somewhat less. The vagina was very much elongated, and its caliber so much narrowed as hardly to admit the little finger. The tumour itself appeared to be an enlarged *right ovary*.

The vertical axis of the tumour measured 21 inches in length, the transverse 16. Its greatest circumference was 54 inches, and its smallest, 43. The mass weighed nearly 70 lbs.

In making the anatomical examination I had the advantage of being assisted by my friend Dr. Sinclair; Dr. Kirkpatrick was also present.

The history of this case presents several features of interest, among which may be mentioned the total absence of dangerous symptoms, and the comparative immunity from suffering for a very long period, one of the longest on record, during which almost the only inconvenience occasioned by the presence of this very large mass was its bulk and unwieldiness. Whether the origin of the disease was in any way connected with or dependent upon an injury received during parturition, it is not easy to determine, the right ovary having been the seat of disease, while the pain which was complained of, and which began suddenly at the period referred to, was confined altogether to the left iliac and inguinal regions.

Art. XVII.—*Clinical Illustrations of Chorea in reference to its connexion with Rheumatism.* By T. P. Heslop, M. D., Physician to the Queen's Hospital, and Professor of Practice of Physic, Queen's College, Birmingham.

Of late years much evidence has been adduced in favour of the existence of an intimate relation between that curious disorder of the motorial functions chorea, and rheumatism. Dr. Copland, many years ago, pointed out the fact, and may claim the merit of having opened up the whole subject. But, although numerous succeeding authors in this country have drawn attention to cases illustrative of their connexion, among whom Dr. Begbie, of Edinburgh, must be prominently named, yet much doubt is expressed by writers of great authority, and further evidence is demanded before a general agreement upon the question can be arrived at.

The cases I am about to relate have been drawn up in the most succinct manner, and so as almost exclusively to relate to the disputed point. They have not been taken in reference to prospective publication, or they would have been more definite in this particular aspect than, unhappily, they will be found to be. The list includes the whole number of in-patients, labouring under chorea, admitted since the month of June, 1852, into my clinique, with the exception of one case, of which, by some accident, I can find no record. I have not abstracted the cases of out-patients, as the difficulty of effecting a minute investigation and exact record is almost insurmountable in this branch of hospital practice. I have also refrained from including cases which have occurred to me in private practice, as I should be compelled here to trust to my memory rather than to written data; although the most striking illustration of the connexion between the two diseases, which has hitherto come under my notice, was such a patient, whose case I shall subsequently allude to. It may be proper to observe, that this list gives but a most inadequate view of my actual experience of this disorder during the past ten years. During nearly three years and a quarter of that time I was the resident physician of another hospital in this town, much larger than the one with which I am now connected, and where I enjoyed the opportunity of observing the cases of chorea of all the physicians, —a disease which formed a remarkably important item in the whole number of admissions. I am, of course, unable to refer to that experience but in the most general manner; but my impressions are very distinct as to the frequency of the connexion between rheumatism and chorea in those cases. I have

a distinct recollection of two fatal cases only: both were girls; one about four, the other about twelve years of age. The first died from intense pericarditis; the second, with general pyrexia and endocarditis, chiefly affecting the aortic valves. A boy, aged about ten, was admitted with general chorea. At the end of six weeks he was quite well, but was readmitted four days afterwards with acute rheumatism, endocarditis, and a relapse of the choreatic symptoms. A third time he was admitted, suffering from a return of his chief symptoms. Seven or eight years afterwards, this boy, now a young man, applied as an out-patient at the Queen's Hospital, and I found him to be the subject of cardiac hypertrophy, with valvular disease. A young girl, at the present time under my care, with a remarkable cardiac rhythm and hypertrophy, was an in-patient of the former hospital eight or nine years ago, for acute rheumatism, endo-pericarditis, and chorea. She has been constantly ill since, with symptoms referred to the heart, and to arteritis of the right arm, connected, probably, originally with embolism. The radial pulse of this arm was, for a lengthened period, imperceptible. But the case previously hinted at, which occurred to me a few months ago, is still more suggestive. A young lady, thirteen years of age, enjoyed excellent health up to the month of June last, when she was attacked with rheumatism of the joints of the extremities in a mild degree. After a few days, choreatic symptoms appeared; the movements were frightfully violent; a well-pronounced to-and-fro sound became developed over the præcordial region, where she had great pain; and with these symptoms she died. She was the third child of her parents. Her father is, to a very unusual degree, a martyr to gout. Three years ago I attended the eldest and second sons, respectively about fifteen and thirteen. They had been to school near town, and were there attacked with rheumatic fever. They were both directly afterwards seized with chorea in a moderately severe form, and I saw them for this disorder, in conjunction with my lamented friend, Mr. Amphlett. These facts are strangely at variance with some recent statements upon the doubtful relation of cardiac inflammation with chorea, but fully bear out the earlier observations of Copland, Bright, Watson, Begbie, Hughes, Kirkes, &c.

It is hardly necessary to define the grounds on which I have admitted a case to be chorea. The diagnosis is, perhaps, as simple in its basis, and as easily attained as any in special pathology. I may merely say that, in bedside diagnosis, I admit, with Romberg, that "the chief features of this affection consist in combined movements of one or more groups of mus-

cles, independent of cerebral influence; increasing in violence when predetermined movements are attempted, and more or less interfering with the latter." This able author disposes of the main subject of this paper in the following statement:—"Bright has found that rheumatic affections, both articular rheumatism and rheumatic pericarditis, are frequent complications and causes of this complaint. My own experience, and that of other writers, does not coincide with this opinion. I have never omitted examining the heart in chorea patients, even when there were no functional disturbances to draw attention to the organ. But, with the exception of two cases, in which the complication was accidental, and in one of which it was only observed after the fifth relapse, brought on by a rheumatic attack, I have not found chorea accompanied by disease of the heart."

Grisolle, in his admirable work on Medicine, gives the English physicians credit for discovering a coincidence. He says:—"Some physicians, particularly in England, have thought to find a relation of cause and effect between rheumatism, particularly rheumatism with endo-pericarditis, and chorea; but, at present, it is impossible to see here anything but a coincidence"[a].

Dr. Wood of Philadelphia observes, "that an intimate association between chorea and pericarditis and endocarditis, has been noticed by some writers; and the complaint has been ascribed to a rheumatic constitution of the blood. It is very possible that rheumatic irritation affecting the cerebral centres may occasionally be an exciting cause; and acute rheumatism has undoubtedly been sometimes associated with chorea. The frequent existence, moreover, of cardiac murmurs has tended to give plausibility to the theory. But though chorea frequently comes under my notice in hospital practice, I have never happened to meet with it connected with rheumatism, or with positive evidence of cardiac inflammation. The murmurs I believe to be generally dependent either on the anemic state of the blood, which is a frequent attendant, or on irregular contraction of the columnæ carneæ under disordered nervous influence"[b].

Dr. Aitken, whose work is the most recent systematic treatise on Medicine, alludes to this subject as follows:—"The evidence of these (enumerated) writers is amply sufficient to prove, that a considerable number of individuals affected with

[a] Fourth Edition, 1850. I have an impression that this statement is modified in later editions.

[b] Practice of Medicine, vol. ii.; Fourth Edition.

chorea have suffered from cardiac or synovial rheumatism previously. But it is unquestionable that all have not so suffered; and indeed the history of the majority of the cases shows that chorea has a more intimate connexion with mental disease, such as imbecility, or even insanity, than with, perhaps, any other morbid state"[a]. This latter statement strikes me as singularly opposed to general experience. I have never seen any mental disorder either in causal or sequential relation to chorea. On the contrary, the temporary nature of the peculiar vacant expression and general oddity, so notable in the disorder, has so strongly impressed my mind, that I invariably give to anxious friends a highly favourable prognosis upon this point.

Dr. Todd[b], on the other hand, fully admits the relation of rheumatism to chorea, and gives one case of the latter disease, which immediately supervened upon an attack of the former. Having alluded to the characters of the urine in the two disorders, he goes on to state:—"This and other circumstances have led me to associate the state of constitution, in which chorea is apt to occur, with the rheumatic diathesis. The proneness of patients of rheumatic constitution to attacks of chorea, the tendency to a repetition of the attacks in both diseases, the frequency in chorea of endocardial affections, so common in rheumatic states, all point to this affinity between the two disorders."

Dr. Watson[c] bases his views of this question mainly upon the important analysis of 309 cases by Dr. Hughes, contained in Guy's Hospital Reports; and upon an analysis of 36 cases by Dr. Kirkes. He observes that, "of sixteen cases examined after death during the existence of chorea, the organs within the thorax were not mentioned in two; were reported healthy in two; and were more or less diseased in twelve;" and again quotes from Dr. Hughes, that, "out of 104 cases in which special inquiries were made respecting rheumatism and heart affections, there were only fifteen in which the patients were both free from cardiac murmur and had not suffered from a previous attack of rheumatism." From such evidence Dr. Watson may well conclude:—"There is convincing evidence in these statements, of a frequent, though not a necessary, connexion between that disease (chorea) and acute rheumatism." Such strangely opposite[d] statements warrant the

[a] Handbook of the Science and Practice of Medicine. 1858.

[b] Clinical Lectures on Affections of the Nervous System. Second Edition, 1856.

[c] Lectures on the Principles and Practice of Physic, Fourth Edition, 1857.

[d] I have been unable to consult the work of M. Seé, who has given evidence on the affirmative side of the question.

belief that further clinical inquiry may prove useful, and that this abstract of cases may escape the charge of being superfluous.

Case I.—A. S., a girl, aged 10, admitted June 29, 1852. Had a severe attack twelve months ago, attributed by her mother to the emotion caused by the loss of all her brothers and sisters in the course of a fortnight. The present attack commenced about six weeks previous to admission; no cardiac bruit. "Her father and mother have no tendency to rheumatic attacks." She is very hysterical. A severe case.

Case II.—C. P., aged 15, admitted September 21, 1852; a locksmith. Had an attack last Christmas, and has never been quite free from it since. Nothing stated in the case-book relative to rheumatism or cardiac disease; urine dark, reaction acid, sp. gr. 1025. A slight case.

Case III.—S. W., girl, aged 13, admitted November 23, 1852. Attack commenced about a month ago; never had rheumatism, fright, or worms. Has not menstruated; heart sounds free from bruit, but during residence in the hospital complained of pains in the chest. Nothing stated about relations having a tendency to rheumatism. A very severe case.

Case IV.—M. J., a married woman, aged 20, admitted November 23, 1852. Was confined ten weeks ago. A few weeks back she was attacked with rheumatism, which seems to have been very general. Shortly after the rheumatic attack, she was seized with slight twitchings and tinglings, first in the left upper extremity, then in the lower one of the same side; the right side is now affected, but not so badly as the left. States that when pregnant, and near her time, she had a fright which caused her some uneasiness; there is a loud systolic bruit two inches below the nipple, not heard up the course of the aorta. During residence in hospital, she had rheumatic pains and swellings of many joints; urine, sp. gr. 1015, with slight light deposit. A case of moderate severity.

Case V.—S. F., aged 8, a girl, admitted September 2, 1853. Has been suffering from general involuntary convulsive movements for three or four weeks; a few months ago she passed some flat worms. A loud bruit is heard with the heart's systole, at the apex and along the left side of the sternum; urine turbid, dense yellowish-gray deposit, reaction highly acid, sp. gr. 1028. lozenge crystals of uric acid in the deposit. A moderately severe case.

Case VI.—R. H., aged 22, a married woman, admitted November 1, 1853. Her mother is very subject to rheumatism, and is also said to have disease of the heart. Patient has

never had rheumatism. She is three months advanced in pregnancy. Heart's action vehement, but sounds normal. Urine pale; sp. gr. 1015. The disorder had existed for six weeks prior to admission. Within a few days after entering the hospital, she was dismissed, owing to disobedience. A mild case.

Case VII.—M. W., aged 12, a girl, admitted November 9, 1853. Was in good health until six weeks ago, when she was attacked with acute rheumatism, on the subsidence of which, after three weeks, she was seized with twitchings in the hands and arms, and afterwards in other parts of the body. Articulation much impaired. There is a slight prolongation of the first sound of the heart. Urine exhibits a copious deposit; sp. gr. 1035. An unusually severe case.

Case VIII.—H. T., aged 25, married, admitted August 24, 1854, labouring under a moderately severe attack of chorea. She was pregnant. On examination, a loud cardiac bruit was heard, but, unhappily, no notes were taken of this case, as she died on the 27th of August, while I was absent. I was informed by my clerk (Mr. Jauncey) that there was extensive disease of the mitral orifice, conjoined with hypertrophy.

Case IX.—A. S., aged 13, admitted October 16, 1854. This is the subject of Case I. It appears that this is the third attack, and although the first attack was attributed to a fright, no similar cause appears to have been in operation this time. It is eight weeks since the seizure commenced, "without any assignable reason." Complains of pains in the back, shooting through the chest; worse on taking a deep inspiration. A systolic bruit is heard at the base of the heart, and up the sternum; pulse soft, weak, and somewhat irregular. Urine clear, rather pale; sp. gr. 1020. The application of nitric acid causes an extremely deep colour.

On the 28th of November, it is reported: —"The movements have quite disappeared; systolic bruit still present."

On 7th of December, "slight movements again; complains of pain across the præcordial region."

Case X.—L. E., a girl, aged 14, admitted October 31, 1854. Has suffered from privation, but has not been exposed to wet or cold. Two years ago she had a fright, followed by convulsive twitchings; was then admitted into the General Hospital; was much troubled, at that time, with flat worms. Twelve months afterwards, again became a patient of the same hospital, for the same complaint. Has never had rheumatism. This present attack commenced three weeks ago. Complains of pains in the joints and occasional frontal cephalalgia; catamenia have not

yet appeared. A loud systolic bruit is heard about an inch below the nipple. Second sound normal.

November 7. No pains anywhere; movements less. No worms detected in the motions.

10th. Movements diminished; complains of pain beneath the mammæ and right side. Had great pain in the loins after a cold bath.

19th. Movements improved, but the pain in loins is still complained of.

20th. Complains of pains in the wrist and shoulder-joints. No swelling.

December 1. Discharged.

Case XI.—J. H., a boy aged 14, admitted May 19, 1854, labouring under twitchings of arms and legs, and impairment of articulation. Five years ago he had an attack of "St. Vitus' dance in the right side, which was cured by a surgeon in about two months." Continued afterwards in good health, with the exception of an occasional headach, until a month ago, when twitchings returned on same side. "A systolic bruit is audible in the cardiac region." Urine, sp. gr. 1020, normal. Has never had rheumatism.

July 11. Jerking movements have entirely disappeared. Bruit unaltered. Discharged.

Case XII.—G. T., aged 40, married, a male, admitted August 29, 1854, with tolerably severe choreatic movements; about four years ago he was attacked with chorea, when it was seven weeks before perfect recovery took place. Has had three or four attacks of the same malady since. The present attack commenced three weeks before admission. Has never had rheumatism. Notes of case imperfect.

Case XIII. W. M., a male, aged 17, admitted December 18, 1854. Has had chorea for the last twelve years; it first came on *severely*, after a bad attack of rheumatic fever, and he was told that the attacks were brought on by being put down into a damp cellar by his schoolmaster. It is also stated that the chorea was preceded by the rheumatism by about a year. During the whole of this period he has been yearly the subject of a recurrence of the movements, coming on suddenly about the autumn, and ceasing similarly at varying periods during the spring. He has been only treated for it once, four years ago at Guy's Hospital, under Dr. Babington. None of his family have had the disease. He cannot attribute the recurrence of the disease this time to anything excepting hard work and anxiety in consequence of a relation's illness. Has always

enjoyed good health, with the exception of several severe attacks of rheumatism. Has never detected worms in his stools, and has always lived well. Pulmonary organs normal, with the exception of a few occasional râles. Heart's impulse moderate. A systolic bruit is heard at the apex, less distinctly up the aorta, and is again very audible in both subclavians and carotids. On the right side of the neck there is a continuous murmur. Pulse full, bounding. Urine clear, pale, acid; sp. gr. 1018.

December 21. Complains of pain in the left knee and elbow, and at the base of the left side of thorax, where there is slight dulness.

January 27. Movements rather worse.

28th. Lumbrici in considerable number are observed in his evacuations after a terebinthinate draught.

February 25. Discharged much relieved. Bruit has almost disappeared.

Case XIV.—C. H., a boy, aged 10, admitted July 6, 1858. A coarse friction sound was audible, generally double, at the base of the heart, whose impulse is tumultuous and throbbing. Pulse 108, feeble and compressible. Tongue coated, and very tremulous. Bowels habitually costive. Urine abundant. There is constant motion of the fingers of the left hand, together with frequent twitching of the left arm. Face is puffy, and rather livid. General physiognomy that of a chorea patient, with vacancy of expression. There is no paralysis either of motion or of sensation. He has never suffered from rheumatic pains, but his father has been severely attacked with rheumatism. About three weeks ago, whilst at play, he suddenly found himself unable to control his legs. They jumped about, to use his own expression, so much that he was unable to walk. At the same time he experienced similar involuntary movements of the left arm, and states that the mouth has been often drawn to the left side. About a week after the first invasion of these symptoms, he experienced a stitch-like sensation in the præcordial region, and became low-spirited and generally ill.

July 10. Feels much better. Friction sound audible at a lower level. Twitching movements of left arm less marked; still, however, considerable.

20th. Frottement almost gone; action of heart more tranquil; experiences no sense of uneasiness anywhere, but "is unable to keep the fingers of his left hand still."

Case XV.—A. E., a girl, aged 18, admitted March 21, 1855, was seized two months ago with chorea in the right arm, which subsequently extended to the whole of the right side. Has

never had anything of the kind before, but has had good health. Never had rheumatism, and there is no hereditary predisposition to it. Has not suffered from worms. The catamenia have not appeared for the last two months, and when last present were scanty in quantity. She is a stout girl and evidently of the "nervous temperament." Heart normal, with the exception of slight irregularity. Urine not noted.

April 12. Has progressed favourably. Movements only obvious during excitement.

Case XVI.—H. P., aged 15, a girl, admitted November 17, 1855. Temperament nervo-lymphatic. First became excited on the 5th, and had involuntary spasmodic action of the muscles, which gradually increased in violence. Had nearly lost power of speech on admission. No cause assigned. Nothing stated about rheumatism; but a *mitral bruit* may be heard at the apex of the heart. Delirium, with contracted pupils, supervened; subsequently the pupils became dilated, the throat inflamed, and a deep abscess appeared in the neck. A very severe case. The register of necropsy too imperfect to be quoted.

Case XVII.—G. R., aged 15, a girl. Temperament, nervo-sanguine. Admitted January 29, 1856. Had an attack of chorea ten months ago; otherwise health has been good. Present attack came on about a month ago. Tongue coated. Movements on admission very severe, affecting the whole body, but worse on the left side. Has at times palpitation of heart, and night headach. Pulse frequent, varying between 96, 100, and 110. Nothing stated relative to rheumatism or character of urine.

Case XVIII.—S. F., aged 11, a girl, admitted May 12, 1857. The subject of Case V. It is three years and a half since the last attack. On admission, constant snatchings are noted in face, arms, and legs. Has pain in the head, but none in the extremities. Nothing stated about rheumatism either in herself or family. It is stated several times in the course of the report that there is no *bruit*.

Case XIX.—H. A., aged 15, admitted July 6, 1858, labouring under intense chorea. She is a remarkably robust and finely developed girl. When about five years old she suffered from general dropsy and suppression of urine. After a long illness she became pretty well, and so continued until six weeks since, when she had an attack of acute rheumatism. Her right arm and lower extremities were affected, the joints being painful; but, it is said, without redness or swelling. At the same time she suffered from very severe pain in the head, and exces-

sive tenderness over the whole scalp. She was confined to bed. Does not appear to have lost the headach when the first symptoms of chorea in the right arm and leg appeared.

The jactitations and twitchings rapidly improved up to the 16th, when a remarkable attack came on. During the day the nurse had observed that she passed urine more frequently than usual, and of a pale colour towards the evening. At 10 o'clock P. M. she suddenly awoke from sleep, and was found by the house surgeon suffering from great dyspnœa, arising apparently from spasm of the laryngeal muscles, and congestion of the vessels of the head and neck, and blueness of the lips. She, in fact, seemed to be in a state of almost complete asphyxia. The contractions of the muscles of the extremities, especially of the arms, were extremely violent; although during the day she had been unusually quiet. These distressing symptoms lasted about four minutes, when they gradually abated, but soon afterwards were renewed by the attempt to swallow liquid. After a quarter of an hour she was again similarly seized, and then fell asleep, but frequently passed urine during the night. Next morning she complained of hysterical symptoms,—choking and rising sensations in throat, &c.; and at $10\frac{1}{2}$ A. M. I was summoned hastily to her bedside. I found her labouring under the same symptoms as had come on the night previously. The teeth were firmly set; the arms thrown wildly about the bed; the vessels of the head and neck turgid, and she struggled most violently. While chloroform was being brought, she became relieved. The urine up to 6 o'clock last night was high-coloured, acid, sp. gr. 1030, containing a little mucus, and about 12 ounces in amount. Within the next twelve hours from 20 to 25 ounces were passed, pale, slightly acid; sp. gr. 1010, quite free from deposit. These symptoms did not recur The catamenia in this patient have always been regular.

Case XX.—S. A. A., a girl, aged 3, admitted September 10, 1858. About a fortnight ago her mother observed a peculiar twitching movement of the mouth and eyes, and a day or two afterwards snatching movements were noticed in the arms, and she constantly moved her fingers, and opened and shut her hands. Nine weeks ago she was very ill with rheumatic fever; the right knee was greatly swollen, and she has never been well since. On admission, her mouth is observed to be constantly moving, but the arms are chiefly affected, they being continually thrown about in a very characteristic manner. During sleep she lies perfectly tranquil, and only a slight movement is now and then to be observed.

I shall now give a rapid summary of the cases in reference to the rheumatic condition. The first case appears to be dependent exclusively upon an excited emotional state—grief for the loss of friends; had a previous attack. The second gives us no information as to the cause; had been attacked nine months before, and never been quite free from it since; urine of high specific gravity. The third case is stated to have never had rheumatism; and there is a total absence of the ordinary causes of the malady; she is said to have had chest-pains during the attack. The fourth case supervened "shortly after" a general attack of rheumatism; a loud cardiac bruit at the apex was noted; while under observation, had rheumatic symptoms. The fifth case presented a loud bruit at the apex, and along the left side of the sternum; the urine highly acid, of high specific gravity, was turbid, and deposited uric acid crystals. The sixth case complicated pregnancy; her mother is very subject to rheumatism; the heart's action vehement, but without bruit; urine, specific gravity, 1015. The seventh case appeared on the subsidence of an attack of rheumatism; a slight cardiac bruit was noticed; copious deposit of urine, specific gravity, 1035. The eighth case complicated pregnancy; serious mitral disease and hypertrophy were found after death. The ninth case is the same as No. 1; it is the third attack; pains in the back and chest; a systolic bruit at the base of the heart and up the sternum, which persisted when movements had disappeared; pain in the præcordial region; specific gravity of urine 1020. The tenth case exhibits the third attack of the disorder; complained of pain in joints, especially wrists and shoulders, and beneath the mammæ; a loud systolic bruit audible an inch below the nipple. The eleventh case is the second attack of the disorder; never had rheumatism, but a systolic bruit existed in the cardiac region, which was unaltered when discharged; urine, specific gravity, 1020. The twelfth case is, probably, a fifth or sixth attack; never had rheumatism; notes of case imperfect. The thirteenth case is as much the history of rheumatic attacks as of chorea; and while in hospital suffered from rheumatic pains in the joints; the cardiac bruit was, probably, both organic and inorganic; when discharged, it had almost disappeared. The fourteenth case was admitted, labouring under pericarditis, with chorea; had never suffered from rheumatic pains; but his father severely so. The fifteenth case appears to have no relation to rheumatism; the heart is said to exhibit "slight irregularity." The sixteenth offers no statement relative to rheumatism, but a mitral bruit was heard at the apex; cerebral

symptoms of unusual severity supervened; record of dissection unreliable. The seventeenth case is a second attack; suffered from palpitation of the heart; but the record supplies no information relative to rheumatism. The eighteenth is the same subject as the fifth; three years and a half have supervened between the attacks; nothing is stated about rheumatism; and it is note-worthy that the bruit formerly observed had entirely disappeared, as repeatedly mentioned in the Report. The nineteenth case closely supervened upon an attack of acute rheumatism. Remarkable hysterical symptoms appeared during the progress of this case, coincident with a very striking change in the character of the urine. The indications of laryngismus and trachelismus were most formidable, and had relief not been quickly obtained, it would have become necessary to seek it in the operation of bronchotomy. The twentieth case offers, in a very young child, an interesting illustration of the relation of chorea to rheumatism; a marked attack of the latter had preceded the outbreak of the former. In a child three years old, it is difficult to imagine hysterical mobility to have much to do with the causation of the disorder.

Such is the evidence upon the point in question supplied by my experience; and I do not imagine that an unbiassed mind can draw any other conclusion from it than that rheumatism has a very frequent clinical connexion with chorea, and that it may give both a predisposition and afford an exciting cause to the convulsive malady. Doubtless, a certain hysterical mobility, a peculiar so-called "nervous" habit, is, in the great majority of cases, the predisposing cause; and the actual seizure is precipitated by fright, possibly worms, prolonged constipation, catamenial suppression, or irregularity. But it appears to me unquestionable that an attack of rheumatism, especially if invading the heart, does frequently assume the rôle of an exciting cause, and not rarely is sufficient to excite the disease, when no other obvious predisposition exists. This latter would seem to be the case when invading very young children. Chorea is peculiarly a disorder of the lower classes, and for the most part attacks ill-nourished children. This may account for the very favourable view given of this affection, as to its therapeutics, by some authors whose observations have been mainly drawn from private sources, the scantiness of which is, for the most part, sufficiently apparent. Assuredly, the more severe forms of rheumatism are to an equally marked degree disorders of the same classes, and connected with hardships of every kind, physical fatigue, insuffi-

cient or bad food, prolonged exposure, the anxieties daily induced by precarious subsistence.

Dr. Watson observes that the temperature appears to influence its development. "Dr. Hughes found it to be more frequent in the six winter months, in the ratio of 3 to 2. This tallies with Romberg's remarks, that the disease becomes rarer as we approach the equator, and is almost unknown in the tropics." This is not supported by these cases. Reckoning from the last part of September, ten of them only were admitted between that time and the end of March; and it must be recollected that several had the disorder for some time previous to admission. One case, however, the thirteenth has an interesting history in this point of view. During a period of twelve years he had been yearly the subject of a recurrence of chorea movements, which came on suddenly about the autumn, and ceased in like manner at varying periods in spring.

I avoid further reflections upon the history of these cases, as they confirm, to a great extent, previous opinions, and as they are foreign to the object of this paper. But I am desirous of submitting a question to my readers, which has not been yet placed in a definite manner before practical physicians. Let it be granted that rheumatism is often connected with chorea in the relation of a cause: that rheumatism not unfrequently comes on during chorea. Should this knowledge modify the present views of the treatment of this latter disease? Should we direct our proceedings against an imagined rheumatic acid, or a hyperinotic condition of the blood, or inflammation more or less circumscribed? Or, on the contrary, should we employ those remedies whose utility has been confirmed by experience, in sole reference to the convulsive condition? I think the latter must be the conclusion of the clinical observer when he consults his own observations; and still more when he reflects that our predecessors were not less successful than ourselves in coping with the disorder, at a time when its particular connexion with rheumatism was as yet unrecognised.

This remark must be accepted with limitations, for some of the remedies employed in chorea have great therapeutic efficacy in various forms of rheumatism: such are arsenic and quina. But this will not apply to the preparations of zinc, and scarcely even to those of iron; and I am unaware of the existence of observations tending to show any advantage from the use of arsenic in the more acute febrile forms of rheumatism.

I will not aver that upon a subject of such grave moment I

am prepared to state the course which should be adopted in all cases of complicated chorea; but I strongly lean to the opinion that the less the complication is allowed to influence the mind of the prescriber, and the more energetic his efforts to control the special features of the disease, the more pronounced will be his success in dealing with it. The fourteenth case, though presenting a well-marked pericarditis, was treated exclusively by Fowler's solution, and the application of derivants to the præcordial region. The twentieth, aged 3, supervening upon a severe attack of rheumatism, was treated also exclusively by arsenic and warm baths; the results in both cases, were highly satisfactory. The latter especially fattened to a marked degree under the remedy. Many authors have laid great stress upon the value of arsenic in chorea, and Dr. Begbie has recently communicated to the Edinburgh Monthly Journal a valuable paper, in which he again draws attention to this agent. For several years my own prepossessions were in favour of the zinc preparations, although I have frequently employed the arsenical solution or the liquor arsenici chloridi of the London Pharmacopœia. On carefully re-examining my cases, I have been forcibly struck by the oft recurrence of notes showing benefit from the use of arsenic, after other measures had failed. I had, in fact, previously but a very inadequate impression of the results of my own cases in this aspect. But it is unnecessary to add further remarks on the question of the value of arsenic, as there is here a very general agreement among the best authors.

Art. XVIII.—*Amaurosis consequent on Chronic Retinitis, cured by Strychnia.* By Daniel Griffin, M.D., M.R.I.A, Licentiate of the King and Queen's College of Physicians in Ireland; Physician to the County of Limerick Infirmary, &c.

In the Dublin Quarterly Journal of Medical Science for August, 1853, I gave an account of a case of complete amaurosis cured by strychnia. A second case, nearly similar, has since come under my observation, and was equally remarkable in manifesting the singularly restorative powers of the same remedy.

Denis Collins, a healthy-looking man, thirty-three years of age, was admitted into the County of Limerick Infirmary on the 24th of September, 1857. He had lost the sight of the left eye, many years since, by a destructive inflammation which injured

the internal parts, and left the whole cornea incurably opaque. Within the last three months he has been affected with dimness of the right eye, which has been gradually increasing, and is now nearly complete; he has not sufficient sight to know people, and can with much difficulty find his way. I can get but a very imperfect account of this affection, but in its progress it seems to have been attended with little or no pain, and he appears to have done nothing for it. The pupil is extremely sluggish in its movements, and rather larger than natural, but the iris is unchanged in colour. There is a moderate amount of congestion of the vessels of the conjunctiva and sclerotic coat; otherwise the appearances are as usual, and pressure on the globe of the eye indicates no softening or other abnormal condition.

He was immediately leeched at the temple, and blistered behind the ears and on the forehead alternately; smartly purged, and put upon the use of mercury until the gums were made slightly tender, and showed some tendency to ptyalism. These measures were repeated and persevered in until all marks of congestion were entirely gone, and the eye was brought to a healthy aspect, a proceeding which occupied about three weeks. There was not, however, the least appearance of returning vision, nor any greater activity in the motions of the iris, nor, indeed, any other sign of restoration of function in the nerve. Remembering, however, the great benefit derived from strychnia in the case to which I have alluded, I was determined to employ it again in all such instances as seemed favourable—and as these measures were but preliminary to its use, I was not disappointed at such a result. He was now, therefore, in the fourth week from his admission, ordered one-twelfth of a grain of strychnia every night at bed-time, with one grain of Dover's powder, made up into a pill with crumb of bread; he used, at the same time, a collyrium of sulphate of zinc, as the eye looked weak and watery. A full fortnight's trial, however, of this plan gave so little promise of success that I was almost tempted to dismiss the case as hopeless, or at least as one in which but little good could be effected. In a few days more, as there seemed some distinct signs of amendment, I determined to persevere further. The blister was occasionally repeated behind the ears, and at the end of the third week of trial the improvement in vision was manifest and decided. On the 2nd November the dose of strychnia was increased to one-eighth of a grain each night at bed-time, everything else remaining the same. On the 6th he reported himself vastly improved; says he can easily count the cars in the corn-market,

at some distance from the hospital, and can see very plainly the dial-plate of the Lunatic Asylum clock about a quarter of a mile off. He can distinguish the letters on it, but not read them, but this indeed would be difficult to any eye. From this time forward he continued to improve rapidly, and was dismissed completely cured on the 23rd of December.

I think there can be no doubt that such cases as these originate in that inflammatory affection of the nervous matter which we call retinitis. From a consideration of their history and progress, it is evident that there are two conditions which destroy or interrupt the functions of the nerve—first, the state of inflammation, with its accompanying circumstances, whether these operate through the deposition of lymph or by the mere pressure or tension of hyperæmia; and second, the loss of power which remains when this declines or has been subdued, whether this arises from simple debility of the nerves, or paralysis, or some other unknown condition. It is in the latter of these states that strychnia seems particularly valuable, and which it appears especially adapted to correct. It seems to me, however, that it is of very great importance to make sure that all traces of inflammatory action are entirely removed before the use of strychnia is entered upon, and I am not quite certain that, in one or two other cases in which the remedy failed, I persevered long enough with the antiphlogistic measures to render the chances of success the best possible. The condition of the retina in these cases, both before and after treatment, would be a very interesting study for the ophthalmoscope. I have had as yet no experience of the use of this instrument, but it is possible that in expert hands it may enable one to distinguish those cases in which such a mode of treatment is likely to be successful.

In most of the cases of this kind which I have seen recorded, the endermic method has been adopted. It remains for experience to decide which is preferable; but there can be no doubt that in all such disordered states of the stomach as would render the internal administration of strychnia questionable, the endermic method should be the one chosen.

In the case I have just given, as in the former one, the small quantity of the strychnia that effected a cure was remarkable. In O'Donnell's case, the quantity used was somewhat less than eight grains in eight weeks, or less than a grain per week. In this of Denis Collins, the whole quantity given was exactly eight grains in ten weeks, or eight-tenths of a grain per week.

Art. XIX.—*Obstetric Morality.* By Fleetwood Churchill, M. D., M. R. I. A., Fellow and Professor of Midwifery in the King and Queen's College of Physicians in Ireland, &c. &c.

TO THE EDITOR OF THE DUBLIN QUARTERLY JOURNAL OF MEDICAL SCIENCE.

Sir,—In the Number of the "Dublin Review" for October, 1858, just published, there is a notice of the paper on "Obstetric Morality" you did me the favour to insert in your last. I cannot say that it reflects much credit on the author either as a literary composition, or a specimen of accurate reasoning. It contains a considerable amount of what reads very like bombast, but, so far as I can perceive, he has not fairly answered any of my propositions. He has evaded some, and misrepresented others; and mixed up with his observations some flippant attempts at wit, which might have been better omitted. I shall not attempt to prolong so useless a controversy, but, with your permission, merely make a few observations on two or three points.

1. In the first Review the author states, and in this he everywhere implies, that children dying or destroyed in utero *are lost*, and he speaks as if this were the declared doctrine of the Roman Catholic Church. Now I am informed that there is no authoritative declaration on the subject, and I shall be obliged to him if he will point it out to me.

Again, he accuses me of having no regard for the souls of the children destroyed by craniotomy, because I deprive them of the sacrament essential to salvation; yet he gives his full sanction to an accoucheur delaying the operation until the child dies. Will he explain to me in what the condition of the soul of a child destroyed by craniotomy differs from that of a child left to die in utero?

2. The reviewer avails himself to the full of the autocratic we, and speaks *ex cathedra* without a shadow of doubting as to the authorities of his Church. Did he ever hear of a work published by Migne, entitled, 'Theologiæ cursus completus,' (Paris, 1839). If he will do me the favour to turn to page 483 of vol. xiv., in a note he will read as follows concerning remedies likely to cause the death of the fœtus:—"Licebit administratio remedii, ... si nulla spes affulgeat prolem baptizandi, nam salus matris ad minus tanti est quam salus temporalis et momentanea prolis, imo magis preponderat: illicitum erit, si spes probabilis affulgeat baptizandi prolem."

Again, if he turn to the works of St. Thomas Aquinas

(Paris, 1839, vol. vi., p. 253), he will find this sentence:—"Si certum esset, non adhibito remedio, fœtum cum matre periturum, et e contra certum aut probabile, adhibito remedio, matrem salvami vi, multi existimant quod tunc liceret adhibere remedium, quia in his circumstantiis vix in æstimationem venit salus prolis certo perituræ, indeque jus habet mater sibi consulendi." It is only fair to say that St. Thomas is himself doubtful on the point, but it is quite enough for my purpose that "multi existimant."

Lastly, St. Alphonsus Liguori, in his 'Homo Apostolicus,' 1837, p. 186, says:—"Puto omnino tenendum . . . . præbere medicinam matri cum periculo fœtus animati licere in eo solo casu, quo nulla spes appareat rationabilis de prolis vitâ, ut possit baptizavi, post matris mortem."

Now, one of two things is certain, either that I do not deserve the hard epithets the Reviewer has bestowed upon me with so liberal a hand; or, that they apply with equal justice to these authorities. Let the Reviewer take his choice.

3. The Reviewer speaks of my "anxiety for my pet operation." Now, considering that in the paper he was reviewing I have spoken of it as a sad necessity, one to be avoided by every possible means; that I have characterized its unnecessary employment as murder, and considering that my defence of the operation in certain cases was drawn from me by the Reviewer himself,—I must say that I consider the phrase both uncandid and dishonest. If the Reviewer read either my book or pamphlet carefully, he must know that this fearful operation is no "pet" of mine. The present generation has witnessed a happy change in the comparative frequency of operations with the forceps and craniotomy: formerly there were three or four of the latter to one of the former in the Rotundo Hospital; for many years past, these proportions have been just reversed, and the use of the forceps has so far superseded craniotomy. About twenty years ago I published a paper on the forceps, and since that time all my efforts, both by writing and lecturing, have had the same object in view, viz., limiting the use of the crotchet, and advocating the substitution of the forceps in every possible case, for the express purpose of saving the child. It would hardly be becoming in me to estimate the success of these efforts, but I am sure that my professional brethren will testify to the fact, that I never recommended or employed craniotomy, the child being alive, without first trying the forceps.

4. The Reviewer is, I think, justly indignant at craniotomy being performed "a third, fourth, or fifth time, or oftener,"

upon the same woman. Such cases are, of course, very rare; but the Reviewer is wrong in supposing them to be little touched upon in obstetric books. These are exactly the cases in which premature labour is recommended, and the medical attendant ought to insist upon this, with the alternative of declining to attend the patient, if her obstinate refusal involve such a repetition of craniotomy.

5. The Reviewer has brought together a considerable number of successful cases of the Cæsarean section; and from them, no doubt, very encouraging inferences may be drawn as to the result in future suitable cases. But he has very disingenuously omitted to notice the difference I pointed out to him between this grave operation, performed after previous notice and adequate preparation, and with sufficient assistance; and the same operation performed *impromptu*, without anticipation, and with little assistance. Until he proves that there would be no greater risk in the latter case than in the former, even he would not dare to recommend it as a substitute for craniotomy, if he had any practical experience; very certain I am, as I said before, that any man acting on the suggestion of this anonymous authority will find juries enough to convict, and judges to sentence him; and if he find any consolation in "martyrdom," which the Reviewer promises him, it will not be derived from the sympathy of either the husbands or wives of this country. But there is no fear; there will be no martyrs in this cause, and the proposal will remain as one of the curiosities of medical literature.

I will not trespass further upon your pages. There is little, indeed, in the Review that requires an answer. In my last paper I asked for some statistics, which he has not given, in support of a startling assertion made by the Reviewer, which I could not credit. Now I will ask him, and I hope not equally in vain, if he wish his statements to have due weight, and if the truth on this important question be his object, to publish his name, that we may meet on equal terms, as I object to an opponent who "hides behind stone walls."

I have the honour to be, Sir,
Your obedient servant,
F. Churchill.

15, *Stephen's-green.*

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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2. *The Medical and Legal Relations of Madness, showing a Cellular Theory of Mind and of Nerve Force, and also of Vegetative Vital Force.* By Joshua Burgess, M. D. London: Churchill. 1858. 8vo, pp. 283.

3. *The Human Mind in its Relations with the Brain and Nervous System.* By Daniel Noble, M. D., Visiting Physician to the Clifton Hall Retreat, Consulting Physician to the Manchester Ear Institution, &c., &c. London: Churchill. 1858. 8vo, pp. 157.

4. *Report of the Londonderry District Hospital for the Insane, to March* 31, 1858. By William Rogan, M.B., Resident Physician. Pamphlet, pp. 16.

5. *The Seventh Annual Report of the County Asylum for the Insane at Colney Hatch.* D. F. Tyerman, M. R. C. S., Medical Superintendent, Male Department. W. G. Marshall, M. R. C. S., Medical Superintendent, Female Department. Pamphlet, pp. 194.

6. *Twentieth Annual Report of the Suffolk County Asylum for the Insane, to December*, 1858. By John Kirkman, M. D., Physician-Superintendent. Pamphlet, pp. 36.

7. *Seventh Annual Report of the Wilts County Asylum for the Insane, from January 1st to the end of the Year* 1857. By John Thurnam, M. D., Physician-Superintendent. Pamphlet, pp. 41.

8. *Tenth Report of the Somerset County Asylum for the Insane, from January 1st to the end of the Year* 1857. By Robert Boyd, M. D., Physician-Superintendent. Pamphlet, pp. 69.

9. *Second Annual Report of the State of the United Asylum for the Insane for the County and Borough of Nottingham, and the Forty-seventh of the original Institution, for the Year* 1857. By W. P. Stiff, M. B., Physician-Superintendent. Pamphlet, pp. 24.

10. *St. Luke's Hospital for Lunatics, for the Year* 1856. Henry Stevens, M. B., Physician-Superintendent. Pamphlet, pp. 34.

11. *The Necessity for some Legalised Arrangements for the Treatment of Dipsomania, or the Drinking Insanity.* By Alexander Peddie, M. D., F. R. C.P.E., &c. Pamphlet, pp. 36.

12. *Mind and Body; a Discourse on the Physiology of the Phrenical Action of the Cerebrum.* By Robert Jamieson, M.D., President of the Medical Chirurgical Society of Aberdeen, Physician-Superintendent of the Royal Aberdeen Asylum for the Insane. Pamphlet, pp. 24.

13. *Thirty-first Annual Report of the Perth Royal Hospital for the Insane, to June,* 1858. By W. Lauder Lindsay, M.D., Physician-Superintendent. Pamphlet, pp. 63.

14. *Thirty-seventh Annual Report of the Directors of the Dundee Royal Asylum for the Insane, for the Year* 1857. By T. T. Wingett, M. D., Physician-Superintendent. Pamphlet, pp. 43.

15. *Medical Report of the Aberdeen Royal Asylum for the Insane, for the Year* 1858. By Robert Jamieson, M. D., Physician-Superintendent. Pamphlet, pp. 24.

16. *Report of the Pennsylvania Hospital for the Insane, for the Year* 1857. By Thomas. S. Kirkbride, M.D., Physician-Superintendent. Pamphlet, pp. 48.

17. *Fourteenth Annual Report of the Managers of the State Lunatic Asylum, January* 7, 1857. John P. Gray, M. D., Physician-Superintendent. Pamphlet, pp. 46.

18. *Reports of the Provincial Lunatic Asylum, Toronto, from 1st July,* 1853, *to 1st March,* 1857. Pamphlet, pp. 46. And *Report for the Year ending March* 1, 1858. Pamphlet, pp. 23. By Joseph Workman, M. D., Physician-Superintendent.

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22. *Twenty-eighth Annual Report of the Belfast District Hospital for the Insane, to March* 31, 1858. By Robert Stewart, M. D., Physician-Superintendent. Pamphlet, pp. 47.

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25. *Report of the Commissioners of Lunacy on Insanity and Idiocy in Massachusetts, U. S. A.* By Edward Jarvis, M. D. Dorchester, Massachusetts, 1855. 8vo. pp. 213.

26. *Reports of the Asylums for European and Native Insane Patients at Bhowanipore and Dallanda, for* 1856 *and* 1857. Calcutta: 1858. 8vo, pp. 70.

1. The Commissioners in Lunacy of England, in their "Twelfth Report," to the 31st March, 1858, give the proceedings of their labours for the year then ended in their usually succinct and business-like manner, entering into detail in all those matters which demand this at their hands, and condensing into due and reasonable proportions such as comparative brevity appears the most suitable for. The Commission itself has been without any change in its *personnel* since last year, and consists of eleven members, headed by Lord Shaftesbury as Chairman, with four other honorary, and six paid Commissioners, half of whom are medical, and half legal; the paid Commissioners

always visiting in pairs, a medical one and a legal one together. The lawyers are very clever and ingenious in managing to get so much of the fat patronage of the land into their hands. The Benjamin's portion which they have possessed from time immemorial in the law proper is a great fact, and yet this does not come up to their grasping powers, but they must poach upon the medical profession, which is confessedly low in the scale of patronage. Even the half-dozen of stipendiary Lunacy Commissioners must be divided with the bar-men, a division which, we think, is here exceedingly out of place, inasmuch as we are quite at a loss to understand how the education of a barrister-at-law can be brought to bear upon the inspection of the insane, or what lawyers have to do with their management in any respect. Much better and more to the purpose would it be that the whole six of the salaried Commissioners were of the medical profession, and that number would be few enough, if even sufficiently numerous, for the requisite official visitation of the insane in England and Wales; the complaint at present being, and we believe justly, that for the work to be done there is not a sufficiency of a fitting inspectional staff.

In regard to new accommodation, providing for the pauper insane in public asylums, we find it stated in this Report that so many as eight asylums are in progress of erection; namely, one for Cumberland, to contain 200, to be completed in 1860, at a cost of £28,000. Durham, for 312 inmates, to be ready next month (December); cost £31,480. Carmarthen, 270 inmates, time of completion, uncertain; cost to be £45,835 4*s*. Bristol, 200, to be in operation next year; cost, £30,000. Sussex, 400; March 1, 1859; cost £51,843, exclusive of bedding, furniture, &c. Cambridge, 250, which was to have been completed in May last; cost, £49,670. Beds, Herts, and Hants, 504; time of opening, uncertain; cost £95,000. Northumberland, 200, which was to have been ready in September last; cost, £50,000. These eight asylums will afford accommodation for a total number of 2336 patients of both sexes, nearly equally divided, at a total cost of £361,828 4*s*., which is, no doubt, a vast expenditure of money, but absolutely requisite, and rather too long delayed in its particular appropriation. At the date of the Report there were in operation 33 county, and 4 borough asylums, with an aggregate population of 16,331 inmates, to which additions were in progress for the reception of 2481; these, with the new county asylums above enumerated, would enable asylum care to be afforded to 21,148 inmates, accommodation, however, which, though so apparently ample will, ac-

cording to a calculation of the Commissioners, not only be fully taken up by the 1st of January, 1860, but by that time, judging from past experience, 1830 additional beds would require to be provided for. This, at first sight, might appear a very alarming state of matters, and lead to the supposition that insanity was greatly on the increase; but we believe there are no real grounds for this inference, the truth being that it is only just now the public mind has been sufficiently aroused to look after the proper care and treatment of the pauper insane, who hitherto have been so largely scattered about in workhouses and "licensed houses," instead of being, as is now happily taking place, provided for in county institutions, specially set apart and appointed for their due treatment and comfortable maintenance, and to effect which the public money could not be more righteously spent. To do the Commissioners, as a public body, but justice, they have been untiring in their efforts with, and calls upon, the authorities to have this most important desideratum accomplished; and great indeed, is the credit which they deserve for this faithful discharge of their duty to the public, and their suffering fellow-creatures.

During the year 1857 the county and borough asylums had under treatment a total number of 16,792. Of that number, 1854 were discharged recovered. The deaths from ordinary causes amounted to 1538; from suicide, to 7 only; and from accidents or violence, to 9. On the 1st of January, 1858, the total number remaining under treatment was 15,125, of whom only 1829 were deemed curable; thus leaving a residuary mass of incurables of 13,296 as a legacy upon the bounty of the country during the term of their natural lives.

The Commissioners' persevering and most proper efforts for the founding of a State Criminal Asylum, similar to our own at Dundrum, have at last, we are rejoiced to find, been crowned with entire success, a site consisting of 290 acres of land having been purchased for the small sum of £6000, on Bagshot Heath, in the county of Surrey, which would appear eminently well calculated as to healthfulness of locality, &c., for this special object. The building of the Asylum was to be commenced with all available despatch, so that before long it may be expected to be in full operation, which will be a great relief in many ways to the ordinary asylums, in which the presence of criminal inmates was so injurious to the other patients, and so much to be deprecated in every point of view. In our last year's[a]

[a] Vol. xxiv., No. 48, page 357.

Review, we took occasion to animadvert in the strongest manner upon the unaccountable and unpardonable neglect of the Government, in respect of providing the best accommodation the country could command for its soldiery, when, in the discharge of their hazardous and invaluable services at home and abroad, they were stricken down by insanity. We had fully hoped, that ere this the authorities had been aroused to action in this gross and scandalous neglect of their duty to the military class of the insane, and that the feeling appeal made on this subject by the Commissioners, in their Report last year, would, as a matter of course, and for the honour of the country, have been at once attended to. But great indeed has been our amazement to see that no step whatever has been taken up to the present time to remedy this crying evil, one which it is a disgrace to our common humanity to have ever had in existence.

The Commissioners thus pointedly and effectively refer to this matter:—

"The question of adequately providing for the care and treatment of insane soldiers remains still in abeyance. Our opinion on the many evils arising from the defective character of the existing arrangements for the accommodation of soldiers labouring under this malady has been expressed in many former Reports, and we have contrasted those arrangements with the excellent provisions made for insane sailors at Haslar Hospital. We are quite at a loss to understand why there should be so marked a difference between the two services, in the presence of the same calamity; and it will not be held beyond the limits of our duty, which we regret the necessity we have been under, of so frequently and so strongly animadverting on the continuance of this painful contrast, to add the expression of a hope, that, amid the general sympathy and attention awakened lately to the condition of the soldier, the absence of all proper human provision for his treatment under a disease to which accidents of service and changes of climate too frequently expose him, will not be much longer overlooked!"

If in the ensuing Session of Parliament, some independent Member of the House of Commons have not spirit enough to call upon the Minister at War for an explanation of this continued negligence in the discharge of a most serious and important duty, we shall have much reason to fear, that the philanthropy, humanity, and authority of that assembly have fallen to a low ebb indeed.

The Report refers to the Asylum at Haverfordwest[a], for its

[a] This is a species of hybrid insane hospital, being neither properly a county nor a borough institution, but one *sui generis*, and containing 33 patients only.—Rev.

continued defective and generally unsatisfactory state of management; its abuses and overt acts of neglect being so great as to call for the suspension of its medical officer, and the appointment of another in his place. The Northampton General Hospital for the Insane is also particularized for "certain alleged acts of cruelty and ill-usage towards patients," which called for special inquiry before two of the Commissioners, at the instance of the Home Secretary; the result of the investigation being, "that serious abuses and acts of violence had been committed by the attendants in the refractory male ward of the hospital, and that sufficient had been proved to justify and render imperative the immediate dismissal of the attendants;" who were dismissed accordingly.

The above are the only instances in which any deviation from kindly treatment has been noted by the Commissioners, and it is worthy of especial record, that not a single county or borough asylum is hinted at, to say nothing of being charged directly or indirectly, with any or the least dereliction of duty, each and all of them being presided over by physicians superintendents of high professional character, and of the most humane and indulgent conduct to their peculiarly afflicted and interesting charge. The Commissioners refer with regret to the circumstance of the Governors of Guy's Hospital having determined to close entirely the lunatic wards of that institution, and having already refused to receive any more female patients. The Commissioners, we apprehend, were rather exacting and interfering, if not crotchety, with the authorities of Guy's, in respect of their wards for the insane, which were an immense boon, being for the treatment of a select number of female patients of the middle classes, without any charge, and who were provided for in the most comfortable manner. The Commissioners state that they made an earnest appeal to the Governors on behalf of a lady "as one who had special claims upon their favourable consideration, and falling peculiarly within the benevolent scheme of the founder of Guy's," but all to no purpose; the snubbed Governors now snubbing the Commissioners in return, by refusing to admit the patient and permitting her, as the only alternative,—a very bad one,—to be transferred to the Workhouse. The Report also takes pointed notice of the unsatisfactory condition of single patients, a large number of them being in charge of medical men and others without any legal authority, and who are consequently deprived of the benefits of all independent supervision. This is a state of things which most assuredly calls loudly for redress.

Having drawn so largly upon the Report of the Commis-

sioners in reference to public asylums, we must not conclude our review of it without shortly noticing the metropolitan and the other provincial licensed houses respectively. The former amount to 37, and are thus licensed:—To medical men 24 (6 of whom are associated with females as co-licensees); non-medical men 5; females solely, 8, 4 of whom are styled "Mrs.," and 4 "Miss." The total number under treatment in these licensed houses for the year 1857 was 3647 (1648 males, 1999 females). The total number of discharges for the same period was 740 (326 males, 414 females). Total recoveries were 298 (125 males, 173 females). The deaths amounted to 276 (160 males, 116 females). The cases of suicide to 2 (males). There remained under treatment on the 1st of January, 1858, 2623 (1167 males, 1456 females), of whom those deemed curable were 325 (135 males, 190 females). Five of the above licensed houses received pauper patients, viz.:—Bethnal House, 329 of the pauper class, and 145 private; Grove Hall, 168 and 184, pauper and private respectively; Camberwell House, 266 pauper and 61 private; Hoxton House, 237 pauper and 95 private; Peckham House, 317 pauper and 49 private. The largest strictly private establishment (licensed to Dr. Williams) is Pembroke House, Hackney, and contained 115 inmates; and the smallest, Clarence Villa, Brompton (licensed to Samuel Batten), had but two patients (males).

The provincial licensed houses amounted to 77, 14 of which were for both private and pauper patients, and contained an aggregate number of inmates of 2697 pauper and 1497 private patients. The largest number of inmates (private and pauper) was at Fisherton House, Wilts (licensed to Dr. W. C. Finch), it containing 316, viz., 78 private, and 238 pauper. The largest entirely private establishment was at Brislington House, Bristol (licensed to the Drs. Fox), which contained 87 inmates; the smallest at Rook Nest, Wakefield (licensed to Dr. Atkinson), having but a single patient. 45 of the above provincial houses were licensed to medical men, 19 to non-medical men, 11 to females (10 "Mrs.," 1 "Miss"), 1 to a "Mrs." and a layman (not husband and wife), and 1 to a medical man and a spinster, conjointly. We have on former occasions[a] expressed a decided opinion as to the impropriety of the insane of any class being in the charge of any party but a regularly educated member of the profession; and now again we feel called upon to repeat that opinion. It is, we consider, only too well calculated to make the impression that mere gain or lucre is the primary

[a] See vol. xvi., No. 32, page 394; and vol. xx., No. 40, page 372.

object in view, and not the benefit of the patients so circumstanced. If the law be deficient on this point, by not allowing the Commissioners in Lunacy to withhold a license from any but a medical man, the time has fully arrived that so serious a defect should be rectified, and we hope it will, when next the lunacy laws come before the Legislature for amendment. We close our review of the Commissioners' Report with the annexed usual "Summary," which it contains; and in taking leave of their Report, we may observe, that though it is a Blue Book deserving of much praise, and containing no small amount of matter of a most interesting and important kind, yet, it is our disinterested and deliberate opinion, that its compilation and contents generally, as compared with the Reports of the Inspectors of Asylums in Ireland, fall considerably short of the latter. We do not make the comparison in any invidious spirit, but honestly, and with the view of suggesting the Irish Reports to the attentive consideration of the Commissioners. We feel assured that they will have a model before them from which they may glean very useful information, and not a few practical hints that might be turned to good account in their future "Blues." Another observation we have to make before parting with the English Commissioners, for another year, and then greeting them, as we hope, with a hearty welcome. It is simply this: that we desire to see them less crotchety, and more stable in purpose than hitherto we have perceived them to be as a body. We now allude more especially to unsettled views in more ways than one on their part. Shiftings and waverings, even with individuals, soon lose for them all confidence and respect for their opinions; how much more will not a public body of men find themselves deprived of their *prestige* who evidence feelings in this way? The Commissioners' crotchets and fault-findings, we have already stated, would not be submitted to by the Guy's Hospital authorities; and the bad consequence of this martinetism has resulted in the closing of the "lunacy wards" of that great and wealthy establishment, and thus debarring female insane patients of the middle class of life from receiving the important benefit thereof. Let the Commissioners avoid for the future this hyper-officialism, which will ultimately recalcitrate upon themselves, and cause great and just dissatisfaction. Official powers are given to be used, not to be abused. The Commissioners, we consider, have failed in the *fortiter in re* by giving way to public asylums, now in progress of building, containing more than a maximum number of 250, which at one period they approved, but are now sanctioning them to have 500 beds; as also, that these impor-

tant institutions should not exceed two storeys in height, but which are now permitted to be three, contrary to the advice of the most experienced and competent in such matters. We might extend these observations, but for the present we prefer not doing so, and shall here leave them, merely stating that what we have said we have intended in the best spirit, and hope it will be received in the same.

Summary.	Private.			Pauper.			Total Males.	Total Females.	Total Lunatics.
	Males.	Females.	Total.	Males.	Females.	Total.			
Asylums, ...	134	98	232	6,797	8,134	14,931	6,931	8,232	15,163
Hospitals, ...	818	759	1,577	95	79	174	913	838	1,751
Metropolitan Licensed Houses, ...	676	630	1,306	490	827	1,317	1,166	1,457	2,623
Provincial Licensed Houses,	754	743	1,497	603	547	1,150	1,357	1,290	2,647
Royal Naval Hospital, . .	126	..	126	..	..	..	126	..	126
	2,508	2,330	4,738	7,985	9,587	17,572	10,493	11,817	22,310

295 of the above (171 males, 124 females) were "found lunatic by inquisition;" and 633 (490 males, 140 females) are given as of the "criminal" class of lunatics.

2. The volume of Dr. Burgess on the "Medical and Legal Relations of Madness" is of tolerably ample dimensions (it numbers nearly 300 pages), embracing a considerable variety of topics, in connexion with the general subject, and is evidently the production of one who has not been without extensive acquaintance with the matters on which he treats. It comprises what may be styled a series of essays on the physiology and pathology of insanity, preparatory to some judicious observations on the legal view of this disease, and concludes with some useful and practical directions as to its treatment. We cannot but express our opinion that he might have improved the title of his work by substituting for the word "Madness," a more professional and less vulgar term; as well as that a good deal of condensation in the general treatment of the topics handled, would have tended to render the volume not alone more readable, but also practically useful. The author's views on the legal question are sound and practical. He does not fail to expose the highly unsatisfactory and unsettled state of our laws, both in the theory and in the practical application to the class of sufferers under consideration, and advocates the appointment of secondary courts of jurisdiction or inquiry, as by commission, in the case of criminal lunatics, as well as legal, or in suspected cases, and in

this suggestion we are strongly disposed to concur. The treatise is illustrated by a large number of *cases*, many of which are singular and interesting, and well adapted to reflect light on a subject confessedly requiring all the aid which practical experience, as well as scientific investigation, can possibly cast upon it. On the whole, we can recommend a perusal of its contents to all who are engaged in endeavours to ameliorate the condition of the insane.

3. Like all that has appeared on kindred subjects from the pen of Dr. Noble, his work, as noted in our list, is characterized at once by its soundness of professional scholarship, candour, and common sense. The psychological part of the work manifests no ordinary degree of correctness in view, as well as clearness of statement; the latter quality being one which (as far as our experience goes) does not always—perhaps, indeed, we might say very often—manifest itself in works of a similar character, and of a much more pretentious caste. As regards mental science, Dr. Noble may, perhaps, be classed among those of the Kantian or Transcendental school, but his accurate mind and sober sense prevent him from following such guides into any too far exalted or aërial flights: the consequence is, that the soberest thinker, who has at all duly thought or extensively read on the subject of mind, will discover nothing here which is calculated to offend. The physiological portion of the work is mainly based on the views of Dr. Carpenter, to whom the author, with creditable candour, confesses his obligations, while with equally creditable independence of view, he differs from him on some points.

Were we to specify any portions of this able volume as worthy of more particular attention, we would refer to Dr. Noble's exposition and theory of consciousness (in chap. v.) and his very admirable vindication of the exalted science which he himself so honourably pursues from the unfounded charge of materialism (too often and too recklessly brought against it), in the concluding chapter, which latter we think deserving of being transcribed in full, and which is as follows:—

"In propounding the foregoing psychological doctrines, I have striven to correlate them with our best established teachings concerning the brain and nervous system; and there *knowledge* upon the subject is defective, with some probable hypothesis and rational speculation. It would be too much to say that the physiological psychology is complete, and to be relied upon in all its parts, or that it is competent to explain all the difficult questions which arise in connexion with this interesting topic. I think, however, that, as a

whole, it is recommended to us by the highest probability. It rests upon a wide induction of facts; and where its propositions are not demonstrable, they have, I think, verisimilitude. Whatever alterations in detail may hereafter become necessary, as the result of ulterior investigation, there can be but little doubt, I apprehend, that, in its essential substance and form, it will maintain for itself that firm position which, in this country at least, it has already established.

"Certainly, in much that has been advanced, there is an insufficiency of evidence for proofs of some of the proposed views, and, upon several points the attempted generalization may be premature. But if, in our own investigations—particularly of such entangled questions as the present—we go on for ever accumulating facts merely, and never make an effort to determine the conclusion which they would seem to indicate, we shall only render the existing perplexity still more complicated. As well observed by an able and eminent philosopher of the present day:—'Although we may often err on the hasty side of generalization, we may equally err on the side of mere elaborate collection of observations, which though sometimes leading to a valuable result, yet, when cumulated without a connecting link, frequently occasion a costly waste of time, and leavet he subject to which they refer in greater obscurity than that in which it was involved at their commencement.'

"I submit, indeed, that in any attempted corroboration of psychology and physiology, it is impossible, in the present state of positive knowledge, to avoid speculation; and further, that for the attainment of clear and connected ideas of psychological pathology and medicine, it is good and useful to construct rational hypotheses, in default of complete and absolute reliable theories. But, of course, hypotheses must not have their value or their office misunderstood; they cannot rightly form a rest like an admitted axiom; they must always be held ready for modification or abandonment, when evidence appears to demand some such proceeding. Meanwhile, they serve to 'colligate facts,' and to fix the attention more inquiringly and searchingly upon phenomena that present themselves to observation or experiment. 'There is a period in knowledge,' says Dr. Crichton, 'when hypothesis must be indulged in, if we mean to make any progress. It is that period when the facts are too numerous to be recollected without general principles; and yet where the facts are too few to constitute a valid theory. Before closing this little work, I would once more guard such of my readers as are unfamiliar with discussions of physiological psychology, against the impression that science suggests the doctrine of materialism, which any multiplicity in the substance of the soul would seem to involve. If there be particular characteristics which more than others distinguish the conscious EGO from mere body, these, I conceive, are spirituality and unity of essence. Have we not the same assurance from pure consciousness, that the ME which thinks is not material —composed of parts, as we have from sense consciousness that body

is extended, and an aggregate of atoms. Indeed, there is nothing in physiological psychology which ought to suggest even the approaches of materialism. In the present sphere of existence, the mind is manifested through organic intervention: a thousand circumstances prove the fact. It is yet no more the case that the material brain is the conscious principle, and its separate parts divisions of the mind, than that the music of the lyre inheres in the instrument, and that the melodies which art can elicit from it are self-produced by the particular strings.'"

4. The Report, for the present year, of the Londonderry District Hospital for the Insane is the first one with which we have been furnished of that institution, now in operation since 1829. It is only, however, within the last two years that it had the advantage of a Physician-Superintendent in the person of Dr. Rogan, the writer of the concise and practical Report now before us. The counties from which patients are received in this Hospital for the Insane are those of Londonderry and Donegal,—that of Tyrone, which also belonged to it, having been separated from it a few years ago, and formed, together with the county of Fermanagh, into a new District Asylum at Omagh. Dr. Rogan states in his Report, that the total number under treatment during the year amounted to 302, of whom the sexes were 152 males, and 150 females. The disposal of the above was as follows, viz.:—Discharged, recovered, 53 (19 males, 34 females); ditto, improved, 18 (10 males, 8 females); ditto, not improved, 2 males; died, 13 (6 males, 7 females); remaining at close of year under treatment, 216 (115 males, 101 females). The largest number of the admissions of the year, which were 93 (42 males, 51 females), was between twenty and thirty years of age; and of the recoveries, 2 had been under treatment nearly seven years, and 12 under two months; which it is questionable was a sufficiently long probation to test their perfect restoration to mental health, the minimum period for this being considered at least three months; and some authorities aver that no decided case of mental derangement should be discharged as recovered under twelve months, which, perhaps, is in the other extreme. Supposed causes of disease were only assigned in 18 cases of the year's admissions, all the others (75) being unknown. And of those 18, 7 were attributed to "fright;" 5 to "drink;" 2 to puerperal affections; 1 to "jealousy," and 1 to "injury of head." 29 of the year's admissions were married, and 64 unmarried. The causes of the 13 deaths were as follows, viz.:—Marasmus, 6; phthisis, 3; suicide, 2; and epilepsy, 1. In regard to the suicides,—both of

whom were males, and both bent on thus terminating their miserable existence, having previously made very deliberate but unsuccessful attempts of the kind,—one hung himself with a mason's line which he had contrived to secrete when tradesmen were on the premises, and the other accomplished his object by strangling himself with the strings of a strait-jacket. The advocates of non-restraint (of which we do not profess to be of the number) will claim this, likely, as a strong proof in their favour, that mechanical restraint, in suicidal cases, is no prevention against the occurrence of so unhappy a result, but rather is a help to it, which no doubt so happened in this instance; but the same could have been accomplished, and assuredly would, by other means constantly and unavoidably at the command of the insane. We take it that there are cases of this description which no earthly means, or human foresight, can thwart the accomplishing of, and that though the very means used in this instance resulted as it did, it is no valid objection to the use of a strait-jacket when circumstances appear to demand its imposition. Dr. Rogan calls attention to a serious deficiency of water on the premises, which, in such an establishment, is an evil of incalculable magnitude, and to remedy which, neither means nor expense should be spared in having supplied in abundant quantity; he also points out the necessity of bath-rooms and lavatories being provided, the utter want of which must be an hourly evil, and very detrimental to the sanitary state of the house, and common personal cleanliness of the inmates, but which, of course, are out of the question until, first, water be at full command throughout the establishment. Dr. Rogan is an advocate, we are glad to find, of a good standard dietary for the insane as a class; but, on looking at the dietary table in use in this institution, we find that no solid meat is allowed on any day in the week, or at any period of the year, to the patients in ordinary, whose dinner meal consists of "ox-head soup" and bread on but two days in the week, and of "vegetable soup" and bread on the other five. We would be very glad to see a change made in this respect in so well-conducted an asylum as that at Derry admittedly is; and we feel quite satisfied that, so far as Dr. Rogan, its excellent Superintendent-Physician, is concerned, the defect now hinted at will be duly attended to. The expenditure of the year amounted to £5248 6*s.* 11*d.*, included in which is the comparatively large sum of £63 13*s.* 8*d.* for tobacco, an item of expense which, on hygienic principles, ought to be banished from our hospitals for the insane; and which, even in America, where that noxious

production is deemed a necessary of life, is becoming the exception to the rule as regards its use, in all ably and well managed public asylums.

5. The County of Middlesex Hospital for the Insane, at Colney Hatch, has now been in operation seven years, and had under treatment at the period of its last printed Annual Report for the year ending 1857, the large number of 1293 patients, of whom 524 were males, and 769 females. The Report before us is a large one of its kind, and copious in the way of detail and statistics, the professional portion of the latter being both carefully and elaborately prepared, and accordingly reflecting much credit upon Mr. Tyreman and Mr. Marshall, the chief resident Medical Officers of this institution, which contains within its walls such a mass of afflicted humanity. The Committee of Visitors, eighteen in number, occupy the first twelve pages of this official document, which, it is but right to say, is less flippant and more free from that overbearing and dictatorial spirit than we usually find to pervade visitors' reports in general, which is no small recommendation in favour of the present one, as far as regards those gentlemen, who evidence much honesty and good sense when they say—

"That the provisions of the Act of Parliament are now so much more satisfactorily complied with by the more ample and far more interesting details furnished by the Medical Superintendents and other heads of departments, that unless any special occurrences have taken place which belong to the institution generally, rather than any particular branch of it, little remains to be said by the Committee which is not better told by the officers themselves."

This is an excellent example for other committees of asylums to follow, but who, we fear, are so prone to write themselves into notoriety, and appear great men at the expense of the labours of their hard-worked medical officers, over whom they would fain be lords and masters to the utmost, that we have little hope of seeing the modest bearing of the Colney Hatch Committee of Visitors copied to any considerable extent by their brethren.

The Visitors in their Report lament—

"That the demand for admission is still very greatly in excess of the accommodation existing at the two asylums; and that in spite of the increased numbers now provided for, amounting to nearly a 100 in the last two or three years, there would seem to be little relief comparatively with the demands of the parishes. Indeed, the number of applications for admission of patients supposed to be

curable, and not afflicted with paralysis or epilepsy (all of whom are received, whether there be a vacancy or not) has shut out a vast proportion of the ordinary cases."

This, no doubt, is a state of things much to be deplored, and requiring an immediate remedy; but we much doubt if the remedy now being adopted by the authorities of both this Asylum and its sister one at Hanwell will be a satisfactory one; namely, further extending their already overgrown establishments, which contain inmates quite sufficient to be spread over about eight asylums, thus giving nearly 300 to each, although it is generally admitted by the best authorities that, in order to do anything like justice to either patients or officers, a larger number than 200 inmates should not be under any one roof. We have in our last[a] and former Reviews expressed our opinion on this subject, and need not now enlarge on it further than to reiterate our strongest protest against this most pernicious system of heaping together the insane *en masse*, and thus setting an example in the metropolis which the provinces will be only too ready to follow, and so be doing an irreparable injury to a class of the afflicted which, of all others, demands that everything should be done and every means used for the amelioration, if not the cure, of the heavy dispensation it is their misfortune, not their fault, to labour under. The responsibility which those placed in the position of Visiting Justices take upon themselves is a most serious one, in closing their ears against all remonstrance on this head; and, seeing that hitherto they have so acted, the time would appear to have fully arrived for the Legislature to interfere and put bounds to the unlimited power the magistracy has been exercising in a matter of the deepest and most vital moment, not merely in a local, but in a national point of view. Passing over the lay portions, if we may so say, of this elaborated document, we come next to the separate Reports of the Medical Superintendents, and from them, did space permit, not a few extracts of great interest might be given. We are compelled, however, to summarize, and to content ourselves, on the present occasion, by stating that the total number discharged, recovered, and relieved, of those under treatment during the year, as already referred to, was 147 (73 males, and 74 females); and the deaths 116 (67 males, and 49 females). The principal cause of death is assigned to general paralysis, viz.:—43 (28 males, 15 females); next, phthisis, 21 (13 males, 8 females); epilepsy, 15 (8 males, 7 females); natural decay, 14 (6 males, 8 females); bronchitis,

[a] Vol. xxiv., page 352.

6 (4 males, 2 females); peritonitis, 3 (2 males, 1 female); suicide by hanging, 1 (a male); maniacal exhaustion, 3 (1 male, 2 females); apoplexy, 2 (females); other causes, 8 (4 males, 4 females). One of the females, still under treatment, is stated to have made several attempts to pluck out her eyes, and to sew her eyelids together, besides bruising her hands in striking them against the fire-guard, or beating them with a poker. A distinctive feature in this Report of the Colney Hatch Asylum is one entitled, "Meteoro-medical Records," which contains much that is interesting, both to the professional and general reader, being drawn up with much scientific care and ability. We find also a special Report from the matron, which we consider quite beside the duties of such an official, and only too well calculated to place her in a false position, and bring the whole Report into ridicule. Why not have Reports from the cook and the laundress also? One from the former might, perhaps, be a very useful record. The "Steward's Report" is another of the documents in this Report which bears about it an absurd air of pretentiousness and importance from a mere subordinate.

The total expenditure incurred in the support of this immense establishment for the past year was £38,774 14*s.*, the largest item in it being for meat, viz., £4705 2*s.* 8*d.*; the next, for malt, hops, and beer, viz., £2147 10*s.* 5*d.* In the pernicious articles of tobacco and snuff a sum of £332 12*s.* was spent, against which we have strongly to protest; and on the other hand, to denounce now, as we have done before[a], the parsimony practised in remunerating the medical superintendents for the vast amount of labour and immense responsibility placed upon each of them. "Muzzle not the ox that plougheth out the corn," is a command contained in Holy Writ, but which has been entirely overlooked in this case; and great indeed is our surprise to find that two highly educated gentlemen, having the constantly anxious charge of 1293 lunatics, receive but £200 per annum each for labours, mental and physical, which must be unceasing and onerous to a degree. Comparisons, we know, are unpalatable; but, without meaning any offence, we feel bound to say that when the chaplain is paid a salary of the same amount; the clerk of the Asylum, £250; the steward, £190; and the clerk to the Committee of Visitors, £130, the medical superintendents, who are the mainspring and the really responsible and hard-worked officers of the institution, should receive salaries of at least £500 per annum each, with all the

[a] See vol. xxiv., page 382.

other usual advantages and allowances; and still be far from obtaining a liberal requital for the important professional services rendered by them. It is an economy of the worst kind thus to "cabin, crib, and confine" efficient officers; and sooner or later it will be found, that so great an injustice, though now submitted to, will not fail to be productive of pernicious consequences.

6. The Twentieth Annual Report of the Suffolk County Asylum, by Dr. Kirkman, its experienced and benevolent Physician-Superintendent for more than a quarter of a century, informs us that, "though the year that has passed has not been free from weighty anxieties, increased by the severe illness of some of the officers, and several of the old attendants, it is satisfactory to be able once again to report the healthy condition of the patients, and the comfort and quietude of the house." We agree fully with Dr. Kirkman in the spirit of the annexed extract, in which is embodied much that is valuable, and deserving of the best attention, coming, as it does, from so eminent an authority in the treatment of insane patients:—

"Our treatment in asylums may partake too much of class treatment, too little of individuality. There is often a stiff formality observable when all sit like school children, thereby invariably raising the medical officer to the likeness of a schoolmaster, and the only indications of convalescence in his patients are supposed to be the unbended back and the padlocked lip. Loud discourse is not inconsistent with order. In some recent suggestions there seems to be an apparent forgetfulness of the truth recognised by all sound authority, that each case requires its particular treatment. There should be variety of accommodation to meet variety of habits and fancies. Some patients, to whom the very 'grasshopper is a burden,' will prefer single rooms; others, fearful of being left alone, will entreat to be placed in companionship. It is desirable, as far as possible, to comply with each individual request; and to yield to each individual's inclination in the hope of cure."

We often hear, as an evidence of the improved conduct of asylums of the present day, of permission being given as a great boon to their inmates to go beyond the walls, and indulge themselves by breathing the fresh air, and admiring nature in all her charms, in an extended walk in the adjoining country; but this has been no novelty to the well-cared for and really liberally treated inmates of the Suffolk Asylum, as the following paragraph records:—

"We are not in the condition of men starting afresh, but of those who have literally borne the burden and heat of the day. It

was the practice, twenty-five years ago, when the number of patients was only 150, to allow both males and females the indulgence of the free air system; they walked to Bromeswell, Sutton, Bridfield, and the adjacent villages; they attended the churches of Ufford and Melton, and, with those exceptions, we have never varied in encouraging the removal of all unnecessary restrictions."

We cannot forbear transcribing another extract from this excellent and sensible Report, the Christian spirit of which is so creditable to its writer:—

"It is hardly possible to over-estimate the value of the expressions of affectionate regard which have been made by many who have attended the funerals of their relatives and friends, at the sight of the grave of the grandchild of the Superintendent in the Asylum ground. The fact of one of his family lying among the insane has realized the conviction that a feeling of unity exists among those who have taken a lively interest in their temporal welfare, with an anticipation of that undivided union to be enjoyed by the whole household of faith, when diseases of body and of mind shall all be among those 'former things which have passed away,' and when a glorified body, a purified conscience, and a perfected reason, shall be possessed by all."

The number of patients treated during the year amounted to 377 (168 males, 209 females); the recoveries were 54; the relieved, 7; and the deaths, 36; which left under treatment, at the close of the year, 278 (122 males, 156 females). The causes of death were—exhaustion and senile infirmity, 15; phthisis, 10; epilepsy, 5; apoplexy, 2; empyema, paralysis, diarrhœa, and cardiac disease, each, 1. The year's disbursements amounted to £6100 14*s.* 2*d.*, of which tobacco formed no part, much to the credit of the institution.

7. A case of delirium tremens having been presented for admission into the Wilts County Asylum, as stated in the Report of Dr. Thurnam for the year 1857, it was refused admission, not being deemed eligible. There are great difficulties in such cases, and, strictly speaking, they do not come within the proper objects, perhaps, of an asylum for the insane; but in the absence of a fitting receptacle for such, it is a greater evil not to take them into temporary charge, and so far as, in the greater number of instances at least, furious and uncontrollable delirium is an evidence of derangement, there could be no more fitting inmates for the wholesome restraint of such establishments. We hope at no distant period to see some provision made for the due surveillance and treatment of a class of patients, for such we must deem them, so imperatively calling for the inter-

ference of friends to save them from themselves, and, perchance, be the means of restoring them to society, as sober members thereof. Another paragraph in Dr. Thurnam's practical report has attracted our attention, namely, the reference he has made to a special case, requiring to be mechanically restrained, the first, it appears, since his institution was opened, a period now of six years. The reasons assigned for this departure from the rule in operation in this Report are potent in the extreme, and our only regret in the matter is, that any superintendent should feel himself called upon to make any excuse, for it so appears to us, for imposing a strait-jacket, or any other species of temporary means, to correct perverted habits, or otherwise, any more than he would for prescribing a shower or plunge-bath, or an heroic dose of laudanum or tartar-emetic. Men in their responsible position should have the moral courage to do what they, in the exercise of their judgment and sound discretion, believe to be right, without any fear of consequences. *Fiat justitia ruat cœlum.* Another passage in the Report deserves being mentioned. We refer to what is stated in regard to "the efficiency of the water supply, and its continuance, through any needful repair of the steam-engine;" and its being "proposed to erect a supplementary pump, with a wheel or capstan, to be worked by some of the male patients, or by a horse." In Ireland it has been objected to by a Royal Commission, consisting of two Englishmen, Mr. Wilkes, one of the Medical Commissioners in Lunacy, and Professor Donaldson, C. E., that the male patients should be employed at labour of this heavy and monotonous kind; but now that a similar mode of dealing with the patients is contemplated, even in one of the best conducted asylums in England, as that at Wilts confessedly is, the custom in Ireland in this respect need not be considered so entirely *outre* and un-English.

The Wilts Asylum, in common with its congeners, was unable to accommodate the applications for admission during the past year, and consequently, we are sorry to find, is likely to undergo extension, it being sufficiently large as it is, for all useful purposes. We ventured to give a caution on this head in our last Review[a], but we are afraid the authorities are not disposed to receive the advice then tendered. We hope, however, that Dr. Thurnam will not be a willing party in the enlargement, so far as he has a voice in it.

The total number treated during the year was 414 (199 males, 215 females). The discharges in recoveries were 42

[a] See vol. xxiv., page 382.

(25 males, 17 females); 3 were removed as relieved, and 32 died; 27 of the deaths were males, and only 5 females, which was a great disproportion. The causes of deaths were:—Phthisis, 6 (males); paralysis, 6 (males); inflammation of the lungs and pleura, 6 (5 males, 1 female); exhaustion, 4 (males); carbuncle, 2 (males); diarrhœa, 2 (females); disease of the heart, 2 (1 male, 1 female); cancer of the stomach, 1 (male); perforating ulcer of the stomach, 1 (female); epilepsy and pleurisy, each 1 (male). The total payments for the year amounted to £8263 17*s.*, and we are sorry to find that the large sum of £57 14*s.* 3½*d.* was expended in tobacco, snuff, and tobacco-pipes; whereas in newspapers and periodicals only £3 4*s.* 4*d.* were invested.

8. The initiative, we are very glad to find, has been made in the County Somerset Asylum, of dispensing with the services of a matron, a vacancy having recently occurred in that office, which afforded the opportunity of ceasing and determining it by the appointment of a "head attendant of the female side" instead thereof,—a reform in the staff of hospitals for the insane which, it will be recollected, has been often advocated in these Annual Reviews. Dr. Boyd, the head of this establishment, so justly celebrated for its superior management in every respect, continues to advance with this day of progress in its conduct. He is making arrangements with the Committee for the "building of a large room for assemblies, in which a considerable proportion of the patients of both sexes may dine together," which is a step decidedly in the right direction; and *apropos* to which we may just observe that, nearly two years since, we ourselves saw this system of association in operation, and with the happiest and most civilizing effects, at the Lucan Asylum, county of Dublin, where the patients formerly domiciled in the "Hardwicke Lunatic Cells" are now most comfortably and advantageously placed, and supported by Government, under the immediate and careful superintendence of Dr. Henry Stewart. Dr. Boyd speaks much in praise of a large dormitory, containing 71 beds, a size which we cannot agree by any means with him in thinking at all desirable or worthy of imitation. No ventilation, however perfect, could, in our conception, preserve the surrounding atmosphere pure with such a number; and, setting this aside, we are clearly of opinion that congregating into one room so many human beings, and those especially the subjects of insanity, and of course more or less restlessly inclined, is entirely opposed to that quietude which is so important an ingredient for securing a sound night's repose. This

is not, we fear, progressive, but rather retrogressive, improvement in the moral and social management of our insane hospitals. We regret having to differ from so eminent and worthy a man as Dr. Boyd ; but he must forgive us for differing from him *in toto* upon this point of domestic economy in his otherwise most excellently well-conducted Asylum. The results of the year are thus given in the Report :—Admissions, 167 (93 males, 74 females) ; discharged, recovered, 72 (38 males, 34 females) ; ditto, relieved, 21 (8 males, 13 females) ; ditto, unimproved, 24 (10 males, 14 females) ; total discharged, 117. Died, 47 (25 males, 22 females). Remaining under treatment on 31st December, 1857, 358 (178 males, 180 females). In the medical treatment pursued during the year Dr. Boyd speaks approvingly of the shower-bath, and gives one case in particular, that of a very turbulent female, in which its frequent application appeared to produce the best effects. Opium was given with decided benefit in some cases of melancholia attended with sleeplessness and a reluctance to take food. The preparation used was prepared by macerating for a month, 1 part of opium in 1 of hydrochloric acid, diluted with 19 parts of distilled water. The liquor, being filtered, is supposed to be of the same strength as the tincture, but has a stronger odour of the drug, and keeps very well. The largest quantity taken by one patient was half an ounce in twenty-four hours, which produced the full narcotic effect. Dr. Boyd states that this preparation is less stimulating and better suited for the insane than the pharmacopœial tincture. Cod-liver oil was found useful in cases of marasmus, and tincture of sumbul in epileptic and hysteric cases. This Report is, as usual, altogether a very able and practical one. The expenses of maintenance for the year amounted to £8589 15*s.* 0¾*d.*

9. The Nottingham Asylum for the Insane had, according to Dr. Stiff's Report, 307 patients in its charge during the past year, 157 being men, and 150 women. The recoveries which took place during the year were 28. 6 were discharged, relieved; 3 not improved; and 23 died; which left in the house, at the close of 1857, a population of 247 (130 men, and 117 women). This is one of the exceptions in which the males preponderate over the females, the reverse being generally the case. Dr. Stiff's Report has the following judicious and sensible observations on the subject of restraint, which we give with much pleasure :—

"The heading of 'Important Occurrences of the Year' may be briefly disposed of. There have been no inquests, no serious acci-

dents, no mechanical restraints employed. In making the last statement, I wish particularly to guard myself against being supposed to advocate the extreme views which have been promulgated amongst the public respecting their use—'That restraint is never necessary, never justifiable, and always injurious in all cases of lunacy whatever.' It is useful occasionally to refer to the state of medical opinion bearing upon points connected with the treatment of insanity. Extended inquiry and observation have led to the general abandonment of the extreme dictum just quoted. My doubts respecting its propriety were confirmed by experience in 1855–6. A patient who had endeavoured to drown himself before admission made further attempts after admission to destroy himself, by hanging, by strangulation, by swallowing pins, by self-mutilation when taking exercise, by dashing his head against walls, by tripping himself up when arm-in-arm with attendants, so as to produce concussion; by refusal of food for weeks, and after compulsory feeding by exciting vomiting by means of his fingers, so as to eject the food, &c. After having exhausted every means of treatment short of restraint, including special watching, it was deemed impossible to keep him alive without it. Restraint was then employed, and in a short time the patient recovered, and returned home. In a somewhat similar case, which occurred soon after, a more recent mode of treatment was adopted—the system of out-door exercise under supervision. This patient destroyed himself on the first day of the experiment. I am even disposed to admit that restraint might have been employed with benefit during the past year. One patient, violent, destructive, and remarkable for her cunning and mischievous propensities, became a source of almost incessant torment, and occasionally of danger, to her fellow-patients, for several months, which a slight amount of restraint would have remedied. Other cases, intractable to ordinary management and therapeutic remedies, have been recorded in some recent Reports to the visitors of several county asylums. Emanating from disinterested and able practitioners, they are worthy of consideration, more especially as there is a disposition to ignore their occurrence."

Extracts then follow of the non-restraint Superintendents of the Hants, Kent, Norfolk, and Leicester County Asylums, and of the Birmingham Borough Asylum, having been compelled to yield to the pressure from within rather than the pressure from without, and honestly and humanely use restraint on certain special occasions. Dr. Stiff deserves great credit for thus fearlessly and independently expressing his opinion (and he is no mean authority) on a much perverted and ill understood point of detail in the management of the insane.

The dietary of this institution is good, liberal, and varied. Milk porridge, or coffee (one pint and a quarter), with bread (seven ounces), and an allowance of butter (a quarter of a pound

amongst twelve patients), are given for breakfast; cooked meat, free from bone (six ounces), with bread (four ounces), vegetables (one pound), and beer (half a pint), are served on two days in the week for dinner ; meat pie, potatoes, and beer, on one day; pea-soup or Irish stew, bread and beer, on two days ; and ice-pudding, bread, cheese, and beer, on two more. The supper consists of bread (six ounces), cheese (one ounce), beer (half a pint), or milk porridge or tea (one pint and a half). Regular workers in the garden, laundry, &c., have in the forenoon a lunch of cheese, bread, and beer ; and later in the day a draught of beer. The total payments made in the year were £7729 7*s.* 4*d.* ; the only remark we have to make on which is, that *smoking* cost £28 and upwards; but Dr. Stiff, we are sure, will have this defect in his otherwise most creditably conducted institution removed in due time.

10. The Report of St. Luke's Hospital being so far back as 1856, and only now furnished to us, we cannot be expected to devote much attention or space to its contents. We think Dr. Stevens, its able Physician-Superintendent (who, *en passant*, we regret to see holding but a subordinate position in the printed Report before us, the two merely Visiting Physicans taking precedence of him in it, though he, of course, has all the responsibility), might have supplied it in due course, when published; but, passing this by as an oversight on his part, we are glad to observe that the improvements in this institution have, even at the eleventh hour, been considerable, and that there is an evident desire on the part of its ruling powers to persevere in this work of wholesome and needful reform to the utmost, thus yielding to the force of public opinion and the animadversions of the Commissioners in Lunacy, who, in the discharge of their duty, condemned St. Luke's in no measured terms for its shortcomings, and for its " cheerless and dreary aspect:" a most just censure, and one upon which we commented at the time[a]. We fear, however, that no transformation or improvements, be they ever so extensive, will make St. Luke's a desirable receptacle for insane patients; and that, in accordance with the suggestions in our Annual Review for 1855[b], the sooner it be given up, and a suitable one erected in the suburbs of London, the better and more humane it will be for all parties, more especially for the patients within its "cheerless and dreary" walls.

[a] See vol. xx., No. 40, page 374. [b] See vol. xxii., No. 44, page 439.

11. Dr. Peddie's *brochure* is, in substance, as the preface informs us, the author's views on the important subject of which it treats, originally presented to the Medico-Chirurgical Society of Edinburgh in the form of an address or paper, and, as we are still further informed, generally approved by that learned and highly qualified auditory. It is, moreover, the result of the author's deliberate judgment, written and formed eight years ago, although only now published. Whatever opinion, therefore, may be come to by the reading and thinking portion of the public on the views thus presented to them, the writer must certainly be exempted from the charge of any undue rashness in giving his ideas to the press, as he has literally observed the rule of the Latin critic, "Nonum prematur in annum."

There are few persons who will read the title-page of this medico-legal pamphlet, and not, we feel pretty certain, indulge in an almost involuntary criticism to the effect that Dr. Peddie has ventured on ground of extreme delicacy, if not of danger, in advocating a course which almost directly involves so apparent an infringement on that boast of every British subject, the *Habeas corpus*. But a more legitimate, if not a more natural and necessary feeling, perhaps, under the circumstances, is that of a shudder at the acknowledged state of our society, now in the nineteenth century, which warrants such a plea as Dr. Peddie feels himself called upon to set up in behalf of the safety of the majority as concerned in, and endangered by, the moral degradation of the few (if, indeed, they be the few) whose indulgence in the vice of abused stimulants has rendered such a plea necessary. The writer's conclusions are based on legal enactments (however imperfect in past times), as well as a rather large induction from fact, and are thus concisely given (p. 22):—

"I. That the man furious or delirious from drink requires immediate restraint and surveillance in an asylum or elsewhere, for some considerable time, and until he has completely recovered from the fit.

"II. That the dipsomaniac must unquestionably be considered as an insane person, as labouring under such weakness of the mental faculties, and such perversity of the moral feelings, as to warrant, not only the imposition of restraint, but its continuance for a considerable period of time, probably two or three years, so as to afford the only chance there is that self-control may be regained, and ruin averted.

"III. That the law gives too limited a definition of insanity, when it does not recognise these extreme cases as falling within its powers; that, consequently, when such cases have been treated in

asylums, they have been submitted to in some measure, or to some extent voluntarily, or been detained illegally, and in neither case so successfully as should have been under other circumstances."

For the details of the plan proposed by Dr. Peddie for bringing compulsion and legal restraint on the class of persons whom he too well describes as gradually suicidal maniacs, as well as pests to society at large, we must refer to the Appendix, wherein those details are fully given.

Without expressing our individual opinion on the entire plan, we beg to commend its attentive perusal to the consideration of all concerned, not only in the amendment and cure of the class referred to, but in the best interests of our common humanity.

12. The design of this tractate, published at the request of the Philosophical Society, to whom it was addressed, as stated at its commencement, by its author, Dr. Jamieson, " is to illustrate the presumed course of nervous movement concerned in the mental phenomena which are associated with the brain;" and in it the non-professional reader will find much to instruct and direct more advanced inquiry, while even the well-read psychologist will discover hints and suggestions which may be practically useful. The author is enabled (as he expresses his desire at the outset of his paper) to steer altogether clear of the *materialist* school; while at the same time he follows, in the line of scientific investigation, the guidance of physiological inquiry, and arrives at what we believe to be true and tenable conclusions as regards the operation of matter on mind, with its results. We strongly recommend this elementary discourse to all who are interested in the exalted subject of which it treats, and who may not have access to more voluminous treatises on the same. We have only room for the concluding portion of our learned author's pamphlet, which will give our readers some idea of the manner in which he has handled his theme:—

" The steps through which we trace the growth of the human mind are from organic movement to consciousness, from consciousness to volition, from volition to reason, from reason to the capacity of acknowledging a guiding power beyond the limits of organic life. We have looked upon phrenic effort as commencing in mere reflex action, and carried upwards successively through instinctive manifestation, voluntary motion, and rational action, to the development of a will capable of desiring to act in unison with a holier will. Humanity is the highest phasis of the relation of spirit to matter in this world, and is the human mind for all philosophic

apprehension of psychology. At the base is a vitality which is simply uterine; above that, merely animal; farther forward, only foolish; above this, diabolic; and, only when transcending mere intellectual power, graduating at humanity, and becoming capable of a life which may blossom as Christian in this world, and sow the seeds of a development that will yet be more godlike, and of a life that will be immortal in heaven."

13. The Directors of the Perth Asylum seem to be of the pachydermatous tribe of animals, no ordinary spurring appearing to be of the least avail in forcing them to give an account of their stewardship in the fiscal way, which is the principal duty they have to discharge to the public. Nothing short of the free application of the Hebrew lamedh, or ox-goad, will answer for directors of their genus; and accordingly, the unpleasant duty again devolves upon us of calling attention, as we have done on so many former occasions[a] to the strangeness of their continuing to withhold any or the least information of the distribution of the large funds with which they are intrusted. We hope this renewed hint will not be lost on the Directors, who *naïvely* inform us on the present occasion, that "no exertions have been spared on their part, both by a judicious expenditure of money, of introducing improvements, and by their own personal superintendence, to render it (the Asylum) worthy of the confidence of the public."

Had they given the particulars of this "judicious expenditure," we could have let pass for what it was worth "their own personal superintendence," and drawn our own conclusions as to their account of the former being deserved; but as they have not, we opine that the "confidence of the public," with our own, will be suspended until this needful information is forthcoming. The Report proper of the Dundee Asylum, so ably drawn up by Dr. Lauder Lindsay, its highly talented and most energetic Superintendent-Physician, we have read with unmixed pleasure, and no small profit. Its entire contents do him infinite credit, and greatly should the directors prize him as their chief, and consider their institution fortunate in no small measure by having so worthy and so well qualified a member of our profession, as its head, to fulfil the all-important behests reposed in his hands. The annexed extracts, and they are not a tithe of what might be given, are equally worthy both of perusal and study by our readers, and will bear us out that we have not overstated the value which is to be attached to this elaborate Report of Dr. Lauder Lindsay:—

[a] See Reviews on Insanity in our November issues for 1854, 1855, 1856, and 1857

"*General Paralysis.*—This is a term, we believe, liable to be greatly abused or misunderstood. It is too commonly and loosely used to include all cases of paralysis occurring in the insane, or at least those associated with exaltation of ideas, or with the monomania of pride, vanity, or ambition. The name is somewhat unfortunate; for in one, and that the most characteristic stage, the paralysis is local and limited—partial in extent; and, moreover, ordinary and spinal paraplegia sometimes merges into paralysis as general as this can be. Nor is it marked by a specific pathological condition; and it is not invariably associated with, nor characteristic of, particular forms of insanity. The term 'general paralysis,' we believe, ought either to be more rigorously defined than at present, or it should be abolished. It has occurred to us to see many mistakes made from the too vague use of this term, which is frequently a most important one in medico-legal cases. In courts of law it is possible that the lawyer and the medical witness may differ as to the interpretation which they put upon these two words. The lawyer regards the 'general paralysis of the insane' as necessarily incurable, and as necessarily implying death at a period of not more than two or three years from the origin of the disease. By using this term, then—unless the medical witness otherwise and rigorously define the sense in which he employs the word, he will be held to commit himself to this view of the prognosis—a view which his evidence may variously contradict."

"Many of the ordinary physical diseases of the sane become most insidious and exceptional in the insane; their character appears to be masked or obscured by an inertia or torpor of the nervous system. Their frequently typhoid type is another feature worthy of note; while a third is the frequent absence of irritative or symptomatic fever. We have sometimes known no complaints made, have seen no external evidence of pain or suffering in acute phthisis—'galloping consumption'—where the subsequent necropsy proved the lungs to have been riddled with vomicæ, full of pus; in phlegmonous erysipelas, going on to the formation of enormous collections of pus in the limbs; in pneumonia, where the lungs were solidified and normal respiration was impossible; in organic diseases of the heart; in gastritis and other diseases."

"Frequently cerebral disease would appear to be vicarious, or, in other words, it takes the place of, and alternates with, diseases in other parts of the body. This phenomenon has been chiefly noticed in connexion with phthisis. The latter is one of the most common complications of insanity. It often happens where insanity and phthisis, or—perhaps we may be allowed to say, assuming, for the sake of illustration, the pathology of the cerebral disease—tubercular or scrofulous disease of the brain and lungs, coexist in an individual, when disease in the one organ is prominent, that of the other is in abeyance. That is to say, where and when the phthisis becomes acutely developed, the patient becomes *pro tem.* sane; and, on the other hand, when the pulmonary disease is overcome or re-

trogrades, insanity again appears, frequently in the form of a paroxysm of acute mania. *Apropos* of phthisis, we may further state that the scrofulous diathesis frequently manifests itself differently in different members of a family. One may be a lad of precocious talents, giving promise of the highest future distinction, but withal of an extremely sensitive nature, and possessed of a delicate nervous or nervo-sanguine temperament; a second may be of a very lymphatic temperament, and suffer from scrofulous sores of the glands of the neck; a third may die young of phthisis; a fourth may be insane; and a fifth, a drunkard or a prodigal."

"It is very certain, though it does not admit of definite statistical proof, that dyspepsia, that protean and heterogenous group of gastric maladies, is frequently the precursor, if not the cause, of insanity; interfering, as it does, more or less directly, with the due nutrition of the brain."

"1. That the size of the skull in the insane (excluding the class of idiots) does not materially differ from its size in the sane.

"2. That no relation can be traced, in the generality of cases, between the size or form of the skull and the different types or phases of insanity.

"3. That, though peculiarities of conformation of the skull certainly frequently exist, they do not bear any fixed relation to the types or phases of insanity.

"4. That similar conformational peculiarities are probably equally common, or nearly so, in the sane.

"5. That in a large proportion of cases the cranial development is decidedly good, and the conformation of the head apparently normal and regular.

"6. That the size and form of the head are therefore *per se* fallacious criteria in the differential diagnosis of insanity."

"The etiology of insanity is a subject of great importance as bearing on its proper prevention and cure. Important lessons may be learned in the daily history of every asylum. The sections pertaining to *causes* in the Tables appended to this Report are comparatively valueless—as all such Tables necessarily are—from the imperfect and unsatisfactory data on which they are founded; it were profitless, therefore, minutely to analyse them. But there are causes undoubtedly operating daily on the large scale—causes which society may do much to prevent or annul—and some of which, in ignorance, prejudice, or obstinacy, it does not exert itself to prevent or abolish; and to these we deem it not unworthy nor unnecessary briefly to direct attention. For we regard it as a duty—though, withal, frequently a disagreeable and thankless one—incumbent on the superintendents of asylums to point out to society the grand public lessons which the histories of such institutions teach. It is only one part of the duty and privilege of these officers—one part of the use of such institutions—to cure insanity. Not a less important duty or use is that of contributing, in however small a degree, to the prevention of insanity—to the purging from out so-

ciety of the unhealthy or morbid elements which predispose thereto. No year passes without abundant proof of the hereditary nature, or hereditary transmissibility, of insanity. Of 69 admissions, hereditary predisposition was proved in 17, 13 females and 4 males—the female sex, therefore, largely predominating in the proportion of more than 3 to 1. In one of these cases the mother was insane; in 2, the father; in 1, the father and brother; in 2, a brother; in 6, sisters; in 1, the maternal uncle; in 1, the paternal uncle; in 1, a half-uncle and aunt; in 1, a grandfather's cousin; and in 1, the family generally were eccentric or insane, according to the views taken as to what constitutes insanity and eccentricity respectively."

"Intimately connected with this subject is the delicate and painful one of the intermarriage of tainted persons, especially of tainted females—of women labouring under, or predisposed to, insanity—and whose offspring are more than likely to manifest insanity, or at least to bear about with them a strong predisposition. We cannot too strongly reprehend the practice in parents or friends, of wilfully concealing from an intending husband or wife the fact of existing or prior insanity in the opposite contracting party. Such practice is not only cruel, but criminal; it is perpetuating and propagating insanity broad-cast; it is burdening the country with the helpless and diseased; it is—to use a phrase which, if plain and homely, nevertheless embodies a great and wholesome truth—'deteriorating the stock' of society. One lamentable instance came under our notice during the year. A woman was brought here for the second time, whose house, on the evening preceding her admission, had presented the following scene:—In one apartment lay a dying husband, cursing, with his last breath, the day he had been married, and lamenting bitterly that he had not been made aware that he was allying himself with a tainted woman. His simple and pathetic story was this: in his youth he had had an attachment for her as a girl; he spent some years abroad as a soldier; on his return, finding her still unmarried, he renewed his former attachment, and was permitted to propose marriage without being made aware, either by her or her friends, that, during his absence, she had had one or more attacks of insanity. They were married, and subsequent attacks soon opened his eyes to his wife's morbid tendency: from that day to the period of his death he never ceased to allude to his alliance as the curse of his life. In an adjoining apartment, a son—an indolent 'ne'er-do-weel,' who had never exerted himself for his own support or that of his parents—had just committed suicide, on being told that, in consequence of his father's approaching death, he would be compelled to work. A daughter had just come home to this scene of misery to be confined of an illegitimate child; while the mother was rushing from room to room, raving mad, and unable to comprehend the scene in which she was so prominent an actor. But, strange to say, similar marriages are sometimes deliberately solemnized among the educated and higher classes of society, when both parties have their eyes open. Such *mésalliances* are, however, much less

seldom marriages of love than of convenience: there is probably, in general, money to be got on one or other side. The parties entering into such compacts are inexcusable on the plea of ignorance of the fearful results of such mal-assorted and unnatural unions. It is a delicate and difficult thing to interfere with civil liberty; but it admits of a reasonable degree of doubt whether there should not be some legal restriction in regard to such marriages. Their effects are most disastrous to society at large; and surely society, which bears the burthen and suffers the penalty, has a right to enter some species of practical protest against proceedings, which are contrary to physiological, as well as to moral, law. The propagation of insanity by means of fatuous and facile female paupers is now amenable to civil law. This subject we may safely leave in the hands of the new Lunacy Board. Such females are comparatively seldom married: their lives are too frequently of the most irregular and dissolute character. More than one deplorable instance has occurred to our notice during the year.

"We are naturally led from the subject of marriages among the insane to consider celibacy as a predisposing cause of insanity. Of 69 admissions during the past year, 49 patients have been unmarried, 17 married, and 3 widowed; or, in other words, the single have been considerably more than double the number of the married. But as the statistics of a single year may exhibit somewhat unusual or fallacious results, we have examined our statistics, bearing on this subject, for the last 31 years; and we find, as the result, that of a total of 679 cases, in which the social condition has been specially noted, 445 have been single, 196 married, and 38 widowed: that is, the single have constituted 65·54 per cent., and the married and widowed together 34·46 per cent., of the whole admissions; or, in other words, the former have been nearly twice as numerous as the latter. It is but fair to state that the statistics of a single asylum may be as fallacious—in relation to society at large—as those of a single year in any given asylum. The statistics of other asylums do show different results. Those who are sceptical as to the value of statistics go the length of asserting that they may be made to prove anything! We trust society has a right to expect that this and similar inquiries and subjects will be elaborated by the new Lunacy Board for Scotland, one of whose most useful duties we take to be the drawing up of statistics from the returns which Government compels the officers of asylums to furnish. Such is the public interest attachable to celibacy as a predisposing cause of insanity that we venture to compare our results with those arrived at by some of the first authorities—British and foreign—on the statistics of insanity, and to draw or deduce a few general conclusions therefrom. The statistics of Bethlem Hospital for the insane, London, according to Dr. Hood, show that the married are more numerous than the single patients in the proportion of 1364 to 1194. This, however, is certainly an exceptional state of matters. Opposite results are given in Bucknill and Tuke's 'Manual of Psychological Medicine,' and

in the statistics of the majority of the British and foreign asylums. In the Salpêtrière and Bicêtre during 20 years ending in 1822, according to M. Desportes, of 2490 patients, 1472 were single, and 956 married, widowed, or divorced. Jacobi's statistics of insanity in Germany show that, of 2015 patients, 1573 were single, and 422 married or widowod. Statistics then, on the whole, indubitably prove that celibacy predisposes to insanity, and also the converse—that matrimony is, to a certain extent, an antidote against insanity, or exercises a preservative influence."

We are unable to devote more room or attention in this Review to the Perth Asylum than to state, that the patients treated in it for the year were, in the aggregate, 224 (115 males, 109 females,—here again the males are in excess, contrary to what usually prevails); that those discharged, recovered and improved, were 17 males and 14 females; ditto, "unimproved," 3 males and 1 female. The deaths were, 11 males (a large ratio as compared with the females) and 3 females, and the causes are thus stated:—Apoplexy, 3 (males); phthisis, 3 (2 males, 1 female); diarrhœa, erysipelas, exhaustion, hepatitis, cancer of liver, heart disease, and gastritis, each 1, (6 males and 1 female). Remaining under treatment at close of year (June, 1858), 175 (84 males, 91 females,—here the females have the preponderance). Appended to the Report is one from the chaplain, which is marked with more common sense and professional disinterestedness than we usually find in such productions, but which, for our own part, we conceive is entirely out of place in these Reports, equally so as those of the Commissioners in Lunacy and Inspectors, to say nothing of matrons, which should be for the board-room alone.

14. We have read with much satisfaction Dr. Wingett's valuable Report of the Dundee Asylum, of which he has been for a series of years the chief officer and Resident Physician, and whose management of the establishment, in all its details, continues to uphold for it the high character it has ever maintained amongst kindred institutions in Scotland. His immediate predecessor was Dr. Alexander Mackintosh, the present able and skilful physician of the Glasgow Asylum, during whose incumbency at Dundee that establishment prospered so happily and increasingly, that a larger and more responsible sphere of usefulness, as at his new seat of government, was deservedly his reward. The Dundee Asylum, like all the other chartered or public asylums of Scotland, is not confined to pauper patients exclusively, but provides accommodation also for the wealthy and educated classes, in an entirely distinct

establishment, however, on the premises, in which all the comforts and luxuries of refined life are provided on the most liberal scale, as we ourselves have had opportunities of witnessing. This is a system which has been in operation in Scotland for a lengthened period,—the mixed asylum system,—and has worked in a manner that cannot be denied as being fraught with the best and most successful results, and appear to us well worthy of extension, and of public support and confidence throughout the United Kingdom. Dr. Wingett has some sensible and judicious remarks in his Report on this subject, which being one that, at the present time, is attracting a large share of general attention, we think deserving of reproducing here *in extenso:*—

"The opinion prevails in some quarters, that the residence of patients of the upper and lower classes in the same asylum is objectionable, and that separate establishments should be provided for their accommodation. This opinion is grounded upon the supposition, that the rich and refined must experience a certain degree of repugnance at the idea of the propinquity of their lowly and less favoured fellows. The experience of this institution has afforded abundant and ever-present evidence of the groundlessness of this notion. No such feelings are ever manifested by the upper classes. They uniformly regard such incorporation of different ranks of individuals in precisely the same spirit with which they have been accustomed to regard it in the community which they have left. They perceive the same classes of society within as there are without. The distinctions of rank are, however, preserved; separation, as regards residence, is effected; and the pursuits and privileges of all have their appropriate limits assigned to them. No association or mingling takes place other than that which is desired by each individual, or which may be prompted by the ordinary motives which bring the rich and poor into contact in every-day life. Benevolence and sympathy bring about a certain amount of voluntary communication among the different grades, highly conducive to the health and happiness of all. It is matter of certainty that this juxtaposition of classes has a great deal of influence in augmenting the general prosperity. It is of daily occurrence that a variety of patronage is exercised by the rich to the advantage of the poor. Here, as elsewhere, rank adopts its pensioners and protegees; cast-off dresses and remainders of dainties are given away; and the diffusion of these little benefits among the poor affords both occupation and gratification to the donors. In fact, the establishment is regarded by all in the light of a small parish. One church unites all grades of worshippers; and a common affection tends to inspire a feeling of condescension and friendly attachment, rather than impatience on account of the poor being tolerated as neighbours. Judging from the experience of this institution, it is certain that the upper-class insane would repudiate this feeling which has been attributed to them, and regard the iso-

lation of their poorer fellows with deep regret. This juxtaposition of classes has always been a pleasant feature in the constitution of this Asylum, and fruitful in means of promoting harmony and contentment. The poorer classes are, however, the greatest gainers by this arrangement, seeing that they are thus the recipients of courtesies and kindness, having nothing but gratitude and respect to give in return. I have long been convinced that this is the best and most effective plan upon which a public asylum can be organized; and in the prospect of extended accommodation for the insane of Scotland, I sincerely trust that the benefits realized by this institution, with its admirable system of incorporation of classes, will not be lost sight of, out of preference for any cold and inexperienced proposals to improve upon existing arrangements, by separating patients into distant and unsympathizing groups of rich and poor."

The number of patients treated during the year in this establishment amounted to 259; 145 being males, and 114 females—another exception it may, in passing, be remarked, to the rule of the men exceeding the women in number.

The discharges, &c., of the above, were as follows:—

	M.	F.	T.
Discharged, cured,	11	10	21
Do., improved,	0	1	1
Do., by desire,	1	4	5
Died,	11	3	14
	23	18	41
Remaining,	122	96	218
	145	114	259
Daily average number of patients,	122	96	218

The assigned causes of disease of the patients admitted during the year were:—

	M.	F.	T.
Disappointment,	6	2	8
Fever,	0	1	1
Epilepsy,	0	1	1
Drunkenness,	3	0	3
Injuries of the head,	3	1	4
Unknown,	16	16	32

The forms of disease were:—

	M.	F.	T.
Mania,	6	3	9
Dementia,	12	9	21
Monomania and Melancholia,	8	9	17
Idiocy,	2	0	2
	28	21	49

The causes of death were:—General paralysis, 5 (males); marasmus, 2 (1 male, 1 female); phthisis, 3 (2 males, 1 female); bronchitis, disease of heart, gastritis, and cancer, each 1 (3 males, 1 female).

The year's expense are fully given, and amounted to £4585 0*s.* 5*d.* No tobacco appears to be permitted to defile the establishment, which is another good feature in its superior management.

15. The authorities of the Aberdeen Asylum having changed the ending of the year of its Medical Report, from March, as it had been, to December, in order to conform to the regulations of the new Lunacy Act for Scotland, the Report last issued, and now before us, embraces but a period of nine months. The results for that time were as follows:—

	M.	F.	T.
Patients in Asylum, April 1, 1857,	144	148	292
Admitted during the year, . . .	35	49	84
Under care and treatment during the year, ...	179	197	376

Removed during the year:—

	M.	F.	T.			
Recovered, . .	24	26	50			
Improved, . .	3	0	3			
Unimproved, .	5	3	8			
Dead, ...	5	16	21			
	—	—	—	37	45	82
Remaining in Asylum, Dec. 1, 1857,				142	152	294

Social Condition of Patients admitted.

	M.	F.	T.
Single, ...	20	28	48
Married, ...	15	12	27
Widowed, ...	0	9	9
	35	49	84

Form of Insanity in Cases admitted.

	M.	F.	T.
Amentia, ...	1	1	2
Mania, ...	11	19	31
Dementia, ...	11	10	21
Melancholia, ...	7	12	19
Monomania, ...	5	7	12
	35	49	84

Employment.

	M.	F.	T.
Gardening,	42	0	42
Workshops,	10	0	10
Needlework,	0	39	39
Knitting,	0	9	9
Laundry-work,	0	20	20
Domestic-work,	6	32	38

The year's expenditure embraced the following items, amongst which it will be seen that tobacco does not form one; but, on the other hand, washing is charged at £57 13*s.* 5*d.*, which surprises us (seeing that 20 females are engaged in the laundry); unless that the amount under that head means washing materials, as we presume it must:—

	£	*s.*	*d.*
Provisions,	2794	6	5
Fire and light,	370	12	11
Washing,	57	13	5
Medicines,	38	10	8
Wine, spirits, and porter,	73	17	8
Repairs,	413	0	2
Furniture and bedding,	236	12	0
Salaries to Medical Officers,	400	0	0
Do. to Chaplain,	50	0	0
Do. to Treasurer,	130	0	0
Do. to House Steward,	77	10	0
Do. to Matron,	70	0	0
Servants' wages,	568	7	10
Incidents, insurances, printing, stationery, and Annuity,	233	11	3
Interest,	339	17	0
Clothing for pauper patients,	279	10	0
	£6133	9	4

The causes assigned for the death casualties during the year were:—Exhaustion, 5 (3 males, 2 females); phthisis, 4 (1 male, 3 females); paralysis, 3 (two males, 1 female); disease of brain, 3 (females); ileus, 2 (1 male, 1 female); cancer, disease of heart, and jaundice, each, 1 (2 males, 1 female).

Dr. Jamieson, the very efficient head of the establishment, thus summarizes the proceedings for the period embraced in his practical Report:—

"The experience of the [nine] months now reported upon, I am glad to say, has been very favourable to the character of the house as hitherto upheld by medical results: the admissions have been 84,

the removals, 82; the gross number under care and treatment, 376; and the average resident number, 299. The recoveries have been equivalent to nearly 60 per cent. on the admissions, and the deaths to 25. The former is a very high average—the highest, indeed, that has been recorded in the history of the institution, with the exception of the year 1854; the latter, viz., the number of deaths, is, however, rather above the average. It is worthy of being noticed, that a number, equivalent to half of the patients admitted during a period embracing the last six years, has during that time left the hospital, recovered: a ratio very remarkable as occurring in an Asylum admitting all descriptions of insanity, even the most hopeless."

The following interesting extract, giving a short history of the creditable antecedents of the Aberdeen Asylum, is the only further one we can afford space for on the present occasion:—

"This Report, short as it is, and more than usually brief the period to which it alludes, may yet seem to have a special interest connected with it, as summing up the results attained from a local provision made nearly sixty years ago, and since so efficiently developed and upheld for the accommodation, treatment, and relief of those afflicted with what is, in the feelings of most, the saddest of human ailments.

"At the time that Parliamentary enactment first compelled an adequate degree of attention to be paid to the welfare of the insane in Scotland, Aberdeen was found already possessed of a self-supporting Asylum, containing 300 inmates, cared for by the services of a staff of about 40 officials, attendants, and servants, of various descriptions, and consisting of extensive buildings, in large part new, and set down in about twenty-five acres of ground, gradually acquired; that it contained upwards of 200 of the pauper lunatics of the town and district, and nearly 100 other cases, many of them of indigent, but not parochial insane, accommodated through benevolent funds connected with the institution at a low rate; that the treatment pursued in it was in harmony with the most advanced views; that the accommodation afforded to pauper and necessitous cases was, on investigation, admitted to be comparable to, and in respect of combined comfort and economy before, any other in Scotland at the date; and that, by the previous existence of the Hospital, the Lunacy Board for the district found on its establishment that it had it in its power to save the county from heavy and unlooked-for assessment and taxation."

16. The Pennsylvania Hospital for the Insane Annual Report for the year 1857, by its Physician-Superintendent, Dr. Kirkbride, is, as usual, well drawn up, giving a full account of the year's proceedings, which have much interest and informa-

tion for those engaged in the treatment of the insane, as well as the general reader besides. The Report states, that the total number of patients in the hospital during the year was 364 (177 males, 187 females). Those discharged cured amounted to 74; and 43 were removed in different stages of improvement. The deaths numbered 17 (14 males, 3 females); 3 were the result of acute mania; 4, softening of the brain; 4, from gradual exhaustion induced by the combined action of long-continued mental excitement, want of sleep, and a refusal of food. There was one case of suicide, the particulars of which are not stated, but which we consider should always be given, as suppressing the facts in connexion with those unfortunate but unavoidable casualties in hospitals for the insane, or using any mysterious silence in connexion with them, is only calculated to produce an unfavourable effect, which, however, a contrary course of procedure would entirely prevent. The other causes of death were,—1 each of dysentery, congestion of the brain, diarrhœa, phthisis, and sloughing ulceration.

After making some sensible observations in reference to the due employment and amusement of the patients in an asylum, Dr. Kirkbride goes on to say, and with much truth:—

"An interest in having the patients pleasantly occupied—after a kind, courteous, and uniformly cheerful disposition in all intercourse with them, and for which no other qualifications can be a substitute—is, indeed, one of the most desirable traits in those who have the care of the insane."

No deficiency in this respect would appear to prevail in Dr. Kirkbride's Asylum, a great variety both of occupation and amusements being provided for them. During nine months of the year regular entertainments, or lectures, on three evenings in the week, are given. We conclude our notice of the Pennsylvania Asylum with the annexed extract, which is so entirely in accordance with our frequently expressed views on the subject to which it relates, that we would beg to recommend it to the serious consideration of all parties whom it may concern on this side of the Atlantic,—those parties whose aspirations are so strongly in favour of nothing short of a file of official chaplains representing the several religious denominations being, *nolens volens*, attached to our hospitals for the insane, which are nearly similarly circumstanced as to varieties of religion as the Pennsylvania establishment, and which should be similarly dealt with:—

Observance of the Sabbath.—Our proximity to a densely settled neighbourhood enables us to allow those patients for whom it is

believed to be desirable the privilege of attending such divine worship, on the first day of the week, morning and afternoon, as they had been accustomed to previous to their entering the hospital. In the evening the patients generally assemble in the large rooms in the centre building, where portions of the Holy Scriptures are read to them by the officers of the institution; and, in certain wards, reading of the same kind is regularly done by the teachers. As no visitors are admitted on this day, and all unnecessary labour is avoided, it has long been a subject of remark, that the quiet and repose about the whole establishment, which is then almost always to be observed, is very striking. This seems to be attributable to a deep-seated respect for the day, the effect often, no doubt, of early education, and which is not entirely lost even when disease has taken from the mind some of its highest attributes. On the Sabbath no leave of absence is granted but to attend divine worship, and throughout the grounds, in the shady groves and pleasant summer-houses, as well as in the wards, our inmates seem to appreciate the quiet and repose that rightfully belong to the day. This mode of observing the Sabbath was commenced, after mature reflection, at the opening of this institution, and extended observation of its effects; and a full knowledge of all that has been done elsewhere, convince me that for this hospital, and for the patients who are received here—embracing individuals of nearly every religious denomination, and often with strong attachments to their own views—it is the best that can be adopted."

17. The present Superintendent-Physician, Dr. John P. Gray, of the Asylum of the State of New York, has not favoured us with copies of his Reports with the same regularity as his able predecessor, Dr. Benedict. The last one we received was the tenth, and this is the fourteenth. As far as we ourselves are in question, this is a matter of no concern whatever; but if professional men, engaged in the practice of psychology, desire that their labours should be noticed in our Annual Review, they cannot expect that this entirely voluntary act will be done unless they transmit us their Reports, our invariable rule being to include none in our list but such as are duly transmitted to our editorial address. To judge from the handsomely executed engraving in the frontispiece of this Report, of the New York State Asylum, it must be a very imposing building of its kind. But its height is against it, exceeding even three storeys,—the three-storeyed asylums in England being objected to, and with good reason, by those who are best qualified to give an opinion on this important point of detail, two storeys being considered the proper elevation, both for sanitary purposes and for the better inspection of the establishment.

The number treated for the year in the institution was 697 (371 males, 326 females), the disposal of whom is thus stated:—

	M.	F.	T.
Discharged, recovered, ...	59	41	100
Do., improved, ...	20	13	33
Do., unimproved, ...	32	33	65
Not insane, ...	7	1	8
Died, ...	22	8	30
	140	96	236
Remaining under treatment, . .	231	230	461

It is observed by Dr. Gray, regarding those discharged "unimproved," that the removal proved beneficial, "in some instances being not only no burden or special care, but actually useful, and a source of comfort to their friends." Mention is made of a form of continued fever merging into a marked typhoid type, which prevailed to some extent, twenty-six cases occurring, which was found to arise from mephitic air, from numerous rat-holes opening directly beneath the windows of certain dormitories, and communicating with the main sewers. The cause being removed, the fever ceased, not, however, without proving fatal in three cases, one being a patient, and two employés. The other causes of death were:—Exhaustion from mental disease, 7 (6 males, 1 female); general paralysis, 6 (males); phthisis, 5 (3 males, 2 females); epilepsy, 2 (males); malaria cachexia, 2 (males); suicide, 2 (1 male, 1 female); nephritis, 1 (male); fibrinous concretion of heart, 1 (male); ovarian dropsy, 1 (female); gangrene of lungs, 1 (female); old age, 1 (female). Total deaths, 30. We have the same observation to make here as when analyzing the Pennsylvania Report, namely, that of the suicides, which unhappily were 2, being passed over in studied silence, or merely given in the mortality list as ordinary cases of death, which we must demur to, and strongly advise our Transatlantic brethren to be a little more explicit in the event of so much to be deprecated an occurrence again taking place in their admittedly well managed institutions. We consider that this departure from the rule invariably pursued in our hospitals for the insane at home, under similar circumstances—that of affording the fullest information of so unfortunate, but, as we have already mentioned, so unavoidable an event, be the means what they may to prevent it—is doing a great injustice to the Superintendents themselves, and placing them in a false position before their brethren. We hope these

suggestions, on a delicate and painful subject, will be taken in the same good and friendly spirit in which they are given.

18. Dr. Joseph Workman, the able and efficient Physician-Superintendent of the Provincial Hospital for the Insane at Toronto, Upper Canada, has favoured us with copies of his excellent Reports from July, 1853, to March, 1858, addressed to the Legislative Assembly of the Province of Canada. We are glad to find a countryman of our own, an Irishman, occupying so responsible and important a position in our British possessions in North America, and, judging from the official documents before us, and the great candour and no less spirit of independence, as well as professional zeal, in which they are written, we must conclude that the Toronto establishment has at its head a well chosen and most excellent Superintendent in the person of Dr. Workman. On the occasion of Dr. Workman taking charge of his Institution, in July, 1853, the number of inmates was 345, of whom 187 were males, and 158 were females. At that period the general health of the Asylum was far from being satisfactory, and our only surprise is, from what follows in the Report, that a plague had not broken out within its walls, and the patients committed to its pestilential agencies —certainly no care which implies due provision having been made for their health, treatment, and comfort—swept off wholesale from this side of the grave. On this extraordinary state of things Dr. Workman states:—

"Every apartment abounded with foul air, and it was found that beneath the basement floors, covering a space of 600 feet in length, by 30 to 100 feet in breadth, there had, from some undiscovered cause, accumulated a mass of filth and impure fluids, the stench from which, when first exposed, was so insufferable and overpowering as instantly to sicken several of those who, including the Visiting Commissioners, chanced to inhale it. The undersigned could not obtain from any available source of information, whether architect, builders, or operatives, who had been employed in the erection of the House, or officers and servants in the establishment, any adequate explanation of the existing evil. There could, however, be no doubt, as to the pestilent influences of the nuisance, and no physician having a due regard for the lives and health of his patients, or for his own reputation, could tolerate its continuance. In the eastern division of the house, beneath the kitchens and adjoining parts, the filth was found to measure from three to five feet in depth, and was of varying consistence, from that of dense mud to thin molasses. The superjacent floors and joists were so rotten as to yield under every passing foot, and in several places had given way, leaving openings from which issued the most offensive effluvia. A rank fungous

vegetation hung from the under surface of the decayed timbers. The dry rot had seized the wood skirtings, and other parts above, and extended into the upper storeys, where it is likely to continue its ravages. But, however pressing was felt the necessity for an exploration and cleansing of the foundations, it was deemed exceedingly hazardous to undertake the work during the summer or autumnal months. No greater evil could probably result from the continuance of the nuisance, in its present state, than from its exposure and agitation in the process of removal. This conclusion was amply verified, even in the cold weather of November, December, and January, when at length the accumulated filth was disturbed and carried to a proper distance outside. The health of the inmates, as well the lunatic patients as the officers and servants of the Institution, was much affected, and continued so until the whole work of cleansing, repairing, and altering the basement was completed. The cause of the bad state of the foundation was discovered to have been a defect in the deep drainage, of a most unaccountable character. The interior drains from the kitchens, laundries, and other parts, being followed from their sources to the points of emergence from the building, were here found to be further impenetrable, having never been carried out to the main sewer, which was at the short distance of 22 feet. The remedy for this evil was palpable, and was promptly applied."

Again we find, that, lethal as the surrounding atmosphere was in this devoted institution, one under the immediate direction and control of the Provincial Parliament, the water was nearly as potent in doing the work of havoc to the lives of her Majesty's mentally afflicted subjects at Toronto, as the following extract will show:—"The water supplied to the Asylum by the forcing-pumps on the bay shore is not less impure than the air of the rooms. It is drawn from the lake at the distance of only sixty yards from the mouth of the main sewer, which carries off all the filth of the privies, laundries, and sinks of the establishment." The means of classification are stated "to be so defective in arrangement as to render the institution comparatively inefficient as a curative establishment;" and, as if all these evils were not sufficient to try the temper of the most patient physician in the world, another Protean head is reared through the "introduction of criminal lunatics from the Provincial Penitentiary and the county jails." It is an outrage against public benevolence and an indignity to human affliction, as Dr. Workman properly observes, "to cast into the same house of refuge with the harmless, feeble, kind-hearted, and truthful victims of ordinary insanity, those moral monsters which nature sometimes seems to have formed, for the purpose of teaching us the inestimable value of the constitution with

which the species has been blessed; or, yet worse, those villains who affect insanity as a means of evading the just punishment of the most atrocious crimes." In a subsequent Report (1856) Dr. Workman is enabled to mention the removal of the male criminal lunatics from the Asylum "as a blessing to the institution, the true value of which could be appreciated only by those who were cognizant of the extent of the evil caused by their presence." This we can well understand, for we have had experience of a similar grievance, and the inestimable advantage and comfort which resulted from a *total separation* of such inmates from the ordinary patients, which has been effected in Ireland by the establishment of the Central Asylum at Dundrum, by Act of Parliament in 1845, and now being carried into operation in England also, after a long struggle to accomplish the same desirable separation. In his Report for 1857, Dr. Workman is enabled to state the gratifying improvment which had taken place in the general health of the Asylum as follows:—

"On my assumption of the duties of Medical Superintendent, dysentery was, and I believe long had been, a very formidable endemic of the Asylum. Erisypelas had been a regular and very perplexing winter visitant. An indigenous cholera, not less malignant and fatal than that of India, had found, in the substratum of filth by which the whole foundation was underlaid, a genial soil. Were proof at this day wanted of the fact, that cleanliness is the surest safeguard against pestilence, it might be had in a comparison of the present and the former state of the basement and other parts of this house. Since the general cleansing of the establishment, and the completion of the drainage, not a single case of fatal dysentery has occurred, and very few cases, even of the mildest form, have been observed. Erysipelas has entirely disappeared, and under the blessing of Providence, in the last visitation of Asiatic cholera in this city, the Asylum entirely escaped this dreadful scourge."

After referring to the deaths in ordinary which occurred in the house, the same not being ascribable to any morbific agency peculiar to it or the locality, but rather the result of pre-existing and frequently long-continued formidable organic disease, as was found by post-mortem examinations, which he had been in the habit of conducting in nearly every case of death (the interesting particulars of a large number of which are embodied in the Report), and stating his belief that insanity is never associated with perfect bodily health, and in the majority of cases dependent on physical debility,—a belief in which we entirely concur,—Dr. Workman goes on to say:—

"It is very much to be desired, with reference to the latter fact, that the true character of the malady, and its most appropriate treatment, were better understood by the medical profession at large, but especially those of the more remote country settlements. Many patients come to this Asylum in a very reduced state, and not a few have been placed beyond the reach of curative means in consequence of the active and depressing therapeutic measures which have been adopted by their physicians. Blood-letting, purging, vomiting, salivation, blistering, cupping, setons, low diet, and the whole battery of medical destructives, have been exhausted; and it is fortunate if the patient has fallen into the hands of only one of this class of psychologists. The most promising cases are generally those for which least has been done. Were generous diet, well-directed kindness, exemption from bodily restraints, moderate exercise, and in many cases a judicious allowance of wine or alcoholic beverages, substituted for the present erroneous medical treatment, a very large proportion of those who are now sent to this Asylum would recover at home, and many who are rendered incurable for life might be saved from so melancholy a doom.

"In expressing this opinion, I am well aware that I am sustained by the unanimous voice of the entire body of medical superintendents of lunatic asylums, both in America and Europe: scarcely a Report from any institution for the cure of insanity reaches me in which the subject of inappropriate treatment before admission is not alluded to, and the evil result deplored."

We have only to say that we believe the caution contained in the above, as to the serious consequences resulting in the use of depressing agencies in the treatment of insanity outside the walls of an hospital for the insane, is most just, and should be duly attended to by all practitioners at home as well as abroad.

Having gone so much at length into Dr. Workman's first Report, embracing a period of four years, we have left ourselves room for little more than a mere glance at his more lately issued one—namely, that for the year ending 1st March, 1858, at which period the number of patients remaining in the house was 466 (215 males, 251 females); and the total treated during the year, 594; the new patients admitted for that period being 166. The year's discharges were 89, and the deaths, 34. Of the patients who remained under treatment, 397 were in the Chief Asylum, and 69 in the University Branch Asylum, an auxiliary establishment provided as additional accommodation for chronic and harmless patients, chiefly females, which had succeeded so admirably that another adjunct of the same kind was strongly recommended. This Report forcibly calls attention to the great want of asylum accommodation for the

wealthier and more respectable insane, their friends being necessitated to sue for admission for them "at the portals of the public institutions of their republican neighbours, praying for that decent and comfortable accommodation which their own wealth had not provided, or the semi-barbarism of their own land had yet denied."

Dr. Workman would appear to have had his share of trouble with the subordinates of his large Asylum also, being nothing better off in this respect than his brethren in the mother country. On this subject we subjoin the following extract, with which we must take leave of his very spirited and ably written Reports:—

"But the superintendent of an insane asylum has other people to manage and to govern besides his patients. Numerous servants and attendants, under whose charge the insane are placed, demand his vigilant, keen, and incessant supervision. The amount of mischief which even one scoundrel is capable of working in any large establishment, and the annoyance and perplexity such a character can contrive to give, can be understood only by those who have encountered the evil. The Toronto Asylum has not enjoyed total exemption from troubles of this sort. I have, however, fearlessly and without favour exercised, as I purpose for the future to exercise, towards all under my control, that authority which the law has vested in me as Medical Superintendent of this Asylum, and without which all salutary discipline would be but a delusion. No man of sense in a position of heavy responsibility will dismiss a good servant; none but fool or a knave will retain a bad one. No evil which can redound from the dismissal of a bad servant in a public institution, no slander which he may whisper or publish, can possibly be so dangerous as his retention. Such persons seldom fail to paint in dark colours the character of their late masters; and there is always to be met with in society a considerable number of people who feel a deep interest in their neighbours' faults, and find much comfort in making them largely known. An officer of this institution, not overloaded with other work, has been in the habit of inquiring from servants leaving the establishment what have been the reasons for their departure? It would be very interesting and instructive to have a perusal of this gentleman's notes."

19. It has been our pleasant duty, on more than one former occasion, to pass in review the pages of the Psychological Journal, which, under the able management of its distinguished editor, Dr. Forbes Winslow, has won for itself no mean place in the scientific journalism of the day. We have now before us four of its quarterly issues, and while we find therein much to commend, and which is calculated to maintain its high po-

sition, we must, in critical candour, add, that some portion of their contents appears to us by no means "up to the mark" of former excellence, nor even calculated to promote the interests of that department of scientific knowledge with which the Psychological Journal has been so long identified.

The January Number opens with a paper, "Body *v.* Mind," which is every way worthy of the periodical, and of the important subject handled. If we err not, after a careful perusal of its contents, we would ascribe it to the accomplished pen of the editor himself. But, whoever is its author, it contains a valuable contribution to a subject until of late quite too much neglected, namely, the relative importance and mutual bearing of matter on mind, considered with a special reference to the human organization. The writer pleads, and pleads well, for due attention to *both* these constituents of our nature, and sums up a long and interesting investigation into the causes and consequences of neglected physical health, in *resumè* of his facts and arguments, which we cannot refrain from quoting somewhat at length:—

"There are certain practical deductions obviously to be drawn from the details and arguments that have been brought forward.

"1. Devotion to intellectual pursuits and to studies, even of the most severe and unremitting character, is not incompatible with extreme longevity, terminated by a serene and unclouded sunset. When Fontenelle's brilliant career terminated, and he was asked if he felt pain, he replied, 'I only feel a difficulty of existing.'

"2. Mental application is a powerful remedy in diseases both of body and mind; and its power as a remedy is proportionate to its intensity as a pursuit.

"3. The emotions, especially those of a depressing kind, as anxiety, fear, &c., have a remarkable influence in giving a tone to, and intensifying the morbific effects of, excessive mental labour. Yet in some cases, as in those of Byron and Cowper, the best and only resource against despair is found in composition.

"4. The turmoils of active life do not appear to render intellectual labour more injurious to the system; possibly here also the influence may be counteracting. Milton, the Secretary to the Commonwealth, in times when men lived years in months—blind and in domestic discomfort, writing his immortal poems; John Wesley, persecuted and almost an outcast from his former friends—in 'labours more abundant'—denying himself natural rest and refreshment, yet acting with mind and body with unparalleled energy; Voltaire, the apostle of infidelity, at war with more than the whole world; Luther, hunted by principalities and powers like a wild beast—these and a cloud of others warred with the existing order of things, and remained masters of themselves and their mental powers to a ripe old age.

"5. The injurious effects of mental labour are in great measure owing—

"To excessive forcing in early youth;

"To sudden or misdirected study;

"To the co-operation of depressing emotions or passions;

"To the neglect of the ordinary rules of hygiene;

"To the neglect of the hints of the body; or

"To the presence of the seeds of disease, degeneration, and decay in the system.

"6. The man of healthy phlegmatic or choleric temperament is less likely to be injured by application than one of the sanguine or melancholic type; yet these latter, with allowance for the original constitution, may be capable of vast efforts.

"7. The extended and deep culture of the mind exerts a directly conservative influence upon the body.

"Fellow-labourer! one word to you before we conclude. Fear not to do manfully the work for which your gifts qualify you; but do it as one who must give an account both of soul and body. Work, and work hard, whilst it is day; but the night cometh soon enough —do not hasten it. Use your faculties, use them to the utmost, but do not abuse them—make not the mortal do the work of the immortal. The body has its claims,—it is a good servant; treat it well, and it will do your work; it knows its own business; do not attempt to teach or to force it; attend to its wants and requirements, listen kindly and patiently to its hints, occasionally forestall its necessities by a little indulgence, and your consideration will be repaid with interest. But task it, and pine it, and suffocate it, make it a slave instead of a servant; it may not complain much, but, like the weary camel in the desert, it will lay it down and die."

We have, in the same Number, some interesting details and statistics respecting the treatment of the insane on the Continent of Europe, and especially in the asylums of Italy, Germany, and France. These will be read with interest, and we think also with profit, by many in this country engaged in the same arduous and honourable field of medical practice. Some of the habits, in the treatment of Continental patients, might, we think, be transferred with profit to our own asylums.

These, and other articles in the January Number of the Journal, are both in keeping with its subject matter, and creditably compiled and composed. But we must be permitted to express our doubts as to the admissibility into the pages of the Psychological Journal, on the score of suitability, of such a paper as that which here meets us, headed "The Indian Rebellion in its Moral and Psychological Aspects." That rebellion may, undoubtedly, have such aspects, but if it have, we altogether miss them here. This Essay might form a very proper article, or rather some half-dozen such, in the way of leader in

the "Times," or a chapter in some historical essay on the Indian revolt, but we must demur to its appearance in the Journal before us; the more especially as the latter half of its title and implied promise are almost entirely forgotten or omitted.

Nearly the same observations apply to the rather elaborate article on "Civilization," with which the April Number opens. We cannot but look upon such papers as these as very much like "filling stuff," and would prefer to see the pages of this hitherto admirable periodical more strictly confined to what is its legitimate *materiel*. The article on the "Psychology of Kant," with which the July number concludes, is an able digest, carefully and philosophically written, of the mental science of the great German metaphysician of the last century. And yet we must honestly say, that its place would appear to us more germane to the pages of the Transactions of some of our Universities or Philosophical Societies, than where it is now found. This paper is, however, both more appropriate, and vastly more in the true spirit of a Psychological Journal, than those which we have noticed, and others which might have been specified.

We perceive that *intemperance*, both as a predisposing cause, and in many cases as a form of *boná fide* insanity, comes in for a due share of attention in these Numbers of the Journal before us. But, while so saying, we must also add, that such a production as No. VI., in the January Part, seems to us very far indeed below the standard, either in matter or style, of a scientific periodical. It might pass muster among a bundle of "temperance tracts;" but how it came, in its present form, from under the editorial censorship of Dr. F. Winslow, is really more than we can, "as at present advised," say. We have here an *amalgam* of most thorough truisms, some (as to us appears) very irrelevant, and, as it would seem, random selected cases, with an attempt at pathological and psychological comment, conveyed in language not always scientifically, not to say grammatically, correct. As a fair specimen of the writer's style and manner of handling his subject, we extract the closing paragraph of his Essay, and shall add no comment:—

"Among the immediate advantages which would result, might be calculated a great diminution of crime; and amongst the working classes they would, with habits of sobriety, manifest greater prudence and forethought; and thus, with a sense of self-respect, would be found a great decrease of pauperism and its consequent degradation. And those amongst the wealthy, when they are cured of an insatiable habit, they would be more likely to attend to works of utility, and may thus become benefactors of their less fortunate fellow-subjects, instead of perverting their morals by their previous most debasing

example. Thus we may affirm, that the good which would result from forcibly counteracting the inordinate craving tendency of chronic intemperance would be greater than the most sanguine spirits, in the full activity of their benevolence, could ever have anticipated.

"And, therefore, as it is our firm conviction that mere precepts, however good, will not correct the errors and crimes resulting from drunkenness, then, in the name of religion, morality, patriotism, and humanity, there is demanded some forcible and effective means to render certain this essential and all-important reform in the habits of a vast proportion of the community."

Somewhat similar in style to the foregoing is an "Autobiographical Sketch of a Drunkard," forming No. V. of the Journal for July. We cannot but consider it a most unfortunate circumstance, for the credit of our contemporary, that such a paper has found its way into it. How *could* the respected editor have admitted it? Has he ever read it? The *moral* of the tract (for it is another attempt at a "temperance tract") is exceedingly questionable. It is the experience of an unhappy man, who, struggling against strong conscientious convictions, and as we think exceedingly ill-advised, took the total abstinence pledge again and again, only to break it. He was evidently in a sober and serious mood when he wrote this autobiographical sketch, but how long he was likely so to continue, or whether he even now remains in it, are matters of exceedingly difficult solution from the data which his own recorded experience affords. But our principal objection to the appearance of such an article in the pages of the Psychological Journal is founded on the fact of its containing sentiments which go very far indeed to upset, or at least to unsettle, in weak-minded persons, some principles and practices which lie very near the foundation of our common faith. How could the editor possibly give admission into his Journal of this teetotaller's hallucinations on the subject of the Christian Sacrament of the Lord's Supper, without one word of caution or refutation? We must earnestly advise a far more careful execution of the editor's office of revision at least, if not of exclusion, in the future management of this hitherto excellent Journal.

Our notice has already extended so far, that we have only space left to mention, with deserved commendation, the excellent Review of Dr. E. B. Legúard's "Researches on the Pathology and Physiology of the Nervous System," with which the July Number opens; the paper "On the Causes of Idiocy,"

which follows; and those on the criminal responsibility of the insane (No. X. in the Number for January, and No. II. in that for April). Those papers are all well worthy of an attentive perusal, and quite in keeping with the high character which the periodical has hitherto maintained.

The October Number of the Journal, which completes the eleventh volume, has just issued from the press; and although several of the articles furnished herein to the students in mental science, as well as those generally interested in kindred subjects, deserve a special notice, our limits prescribe to us but a slight and passing one. The *contents* of the present Number will show the line pursued by its accomplished editor; and in thus making a reference to Dr. Forbes Winslow, we cannot forbear the addition of a wish, that his mind and pen were more palpably manifest in this Journal generally, as well as in the portion of it now before us. Dr. Winslow has furnished one article at least, under the head of "Lunacy Legislation," forming the valedictory address delivered by him at the meeting of Medical Officers of Asylums for the Insane, held at Edinburgh in the month of July last. In this very valuable document, various existing evils, connected with the subject of insanity and *quasi* insanity, are pointed out, as well as some greatly called for, and very seasonable remedies, chiefly of a legal kind, suggested. We hope that this paper may come under the notice of some of our legislators, and especially those of them in that position, which calls upon and enables them to originate measures for many of the evils which so seriously affected society, arising from this acknowledged source.

We have also an interesting paper "On the Moral Pathology of London," but, respecting it, as well as the opening "Psychological Quarterly Retrospect," we confess to the opinion which we have been constrained to express regarding other such contributions to former Numbers of this periodical, that, instructive and suggestive as they may be, we can hardly endorse them as directly or sufficiently within the legitimate scope of the Journal wherein they appear. If it be destined to fill the important path in a medical and psychological sense which it has chosen for itself, its articles must bear more directly, and with a more strictly scientific aim, on the subject matter in hand.

There is a clever, as well as an amusing paper "On a Particular Class of Dreams induced by Food," and another "On the Psychological Basis of the Language of Orators, Poets, and Philosophers," which will repay a reading: in the latter we

notice that higher tone of psychological writing and thought, which (to borrow a phrase from our neighbours north of the Tweed) we *desiderate* in such a Journal.

The statistical information furnished in the remaining articles, which deal mainly with the Asylums on the Continent, as well as the present state of Lunacy in England and Wales, is exceedingly valuable, as we have no doubt it is authentic, and will be read with interest by all who are engaged in this most honourable and praiseworthy department of practical pathology.

20. The Asylum Journal of Mental Science, or, as in its last issue for the October quarter, it is more appropriately designated, "The Journal" simply "of Mental Science," an alteration suggested and agreed upon at the recent Annual Meeting of the Association of Medical Officers of Hospitals for the Insane, contains, in its several parts for the present year, much valuable matter in relation to Psychology in all its departments. The papers in the January Number are numerous and interesting, in addition to several good illustrations. One of the former is an extended and able review, by Dr. Bucknill, the Editor of the Journal, of the last Report of the Inspectors of Hospitals for the Insane in this country, which is characterized by the reviewer as "a full and most valuable Report, replete with useful and exact information, and with scientific interest," an approval of no mean kind, coming, as it does, from a hand well skilled in discerning good and evil in such production. The smallness of the salaries paid to the Inspectors is exposed for its invidiousness and great unfairness as compared with those paid to both the English and Scotch Commissioners, who have not nearly so much actual work to do, or responsibility imposed upon them. "They," observes the writer, "at present receive only £900 per annum, a sum by no means adequate to their position and the work they have to do, and invidiously small as compared with the salaries of Commissioners in other parts of the kingdom." We have expressed pretty similar views ourselves in our last Annual Review[a] on this point, and are now very glad to find that we are supported by our excellent and disinterested contemporary, and, with him, seriously hope that our Inspectors "may receive, under any future enactments, a more just remuneration than that now appointed them." Another excellent and well-timed article in this Number is one entitled "Admission of Reporters to the Board Meetings of Asy-

[a] See vol. xxiv., No. 48, p. 348.

lums," which has more especial reference to the Cork Asylum, and incidentally to that at Mullingar, in which institutions the extraordinary, unprecedented (except in the above-named two Asylums), and unfeeling practice has been established, of regularly parading in the local newspapers the sayings and doings of certain empty-headed and vain Governors, panting after newspaper notoriety, even through the unfortunate insane under their protection. The writer of this paper, after going pretty largely into the matters of a newspaper report of the trumpery proceedings of a Board Meeting of the Cork Asylum, and after a good deal of cutting sarcasm, goes on to say:—

"Certainly there is something bad pervading the establishment; namely, the influence of vain egotistical men as governors, whose proceedings appear but too well adapted to promote a general insubordination. By transforming their Board into a petty police court, they will doubtless succeed in driving from the Asylum all good servants. By denying to their superintendent all proper authority over such servants as he can procure, they will get plenty of complaints to investigate; and by publishing such investigations in the newspapers, they will find themselves at length served by such persons only as are indifferent to the public exposure of any venial lapse of temper or conduct. Was it not enough to dismiss the insubordinate Mrs. Larkin for her act of disobedience? Was it not enough to fine and reprimand the impertinent Julia? but they must also be gibbeted to the whole country side, as examples of board-room justice. The officers and attendants at the Cork Asylum must be very thick-skinned. We trust that the patients possess the like quality, for the natural course of events will cause them to need it. After these complaints were disposed of, the jocose Mr. Dowden became quite eloquent on 'a complaint he had to make, they had no schoolmaster there,' &c.; 'they could get one for £20 a year;' 'there is no doubt we pay a wretched price for mind.' Alas, yes! one of the prizes we pay is to have places of business converted into oratorical platforms, and our time wasted in listening to *bunkum* speeches. Bunkum is the American term for those speeches in Congress which are *solely* intended for the *local* newspapers, and the gratification of the friends and constituents of the orator. Bunkum occupies a vast space of time at St. Stephen's, to the great hinderance of business; but if it invades successfully the board-room of asylums, gaols, unions, and other places, which ought to be centres of action alone, it will exalt throughout the country the unpractical wind-bag man, above the man of affairs, and prove about the worst thing that ever came from the west."

We have only further to remark on this subject, of admitting reporters into asylums, that we consider it to be the bounden duty of the Inspectors to call the attention of the Executive to

such an impropriety, in order to have the evil at once remedied.

The April Number has the following, amongst other papers—"Description of the new House at the Devon County Asylum, with remarks upon the sea-side residence for the insane," by the Editor; "The Practice of Surgery in connexion with the Treatment of Lunacy," by Mr. Tyerman, one of the Medical Superintendents of the Colney Hatch Asylum, a very practical and instructive communication; "On Mental Physiology, by Mr. Dunn, F.R.C.S. Eng.;" "The Insane Colony at Gheel," by Dr. Stevens, Physician-Superintendent of St. Luke's Hospital—a paper full of interest; "The Condition of the Insane, and the Treatment of Nervous Diseases in Turkey," by Dr. Foote, formerly the able Medical Superintendent of the notorious Norfolk County Asylum, where he was so tyrannically treated by its Visiting Justices;—this essay does him much credit; "The Custody of the Insane Poor," by the Editor, who has described this subject with much ability, but we must take exception to the term "custody," which sounds harsh and savours too much of the gaol. We find in the July Part of the Journal, several excellent and valuable articles, with full reports of the Commission of Lunacy on Sir Henry Meux, and the Rev. Mr. Leach, both of which have engaged so large a share of the public attention. Mr. Tyerman's paper is continued in this Number with equal interest as the first portion; and Dr. Huxley, the eminent Physician-Superintendent of the Kent County Asylum, has a notice of a form of window suited for asylums, which appears ingenious and well contrived for its special purpose. The last Number of the series for the year, the October issue, which has just come to hand as we were going to press, has for its opening paper one entitled, "Hamlet, a Psychological Study," from the prolific pen of the talented Editor, who discourses his subject with much eloquence, and at great length, namely, in 55 pages; next follows the official Report of the proceedings which took place at the recently held annual meeting of the Association of Medical Officers of Asylums and Hospitals for the Insane, in the University of Edinburgh, Dr. Conolly, D.C.L., filling the chair as President for the current year; Dr. Winslow, the retiring President, read a valedictory address, of much eloquence of style, as might be expected from him. Several papers of interest and importance, now published *in extenso* in the Journal, were read at the Meeting, and among them was one in particular supplied by Dr. Huxley, the very intelligent and generally esteemed Resident Physician of the Kent County Asy-

lum, "On the Existing Relation between the Lunacy Commission and Medical Superintendents of Public Asylums," in which he expresses his mind most independently and freely in regard to the conduct of the Commissioners in Lunacy towards the experienced and able men who are at the head of the public asylums in England; and from the tenor of which the only conclusion to be drawn is that, as matters at present exist between the Commissioners and the Superintendents, nothing short of a drawn battle is close at hand, nay, at the very doors,—a state of things greatly to be lamented, being much against the public interests, and very different to what happily exists, and has ever existed between the Government Inspectors in Ireland and the Medical Officers of the Public and Private Institutions for the Insane; courtesy upon the one hand, and esteem and respect on the other, being the order of the day with them in their different relations. That there are good grounds for the conclusion we have arrived at, the annexed extracts from Dr. Huxley's paper will make clearly manifest:—

"Let me review briefly a recent act of the Commission bearing on the moral and social relation between Superintendents and Commissioners. In the inquiry the Commissioners instituted by circular respecting the use of the shower-bath in asylums, an accident merely coinciding with the application of that apparatus set that inquiry in motion. If the apprehension was right, and demanded, on discovery, the extreme measure the Commissioners sought to institute, where was their knowledge of the practice of shower-bathing in asylums during many previous years? With what a sudden fire for the public weal were they not burned by the accident of a man whose heart was degenerated in structure being submitted to the shower-bath, and dying soon after! I have said, *the accident of a man with a degenerated heart*, which appears to have been the real accident, and a contingency, perhaps, not to have been foreseen; but I must not be understood as advocating the practice of shower-bathing of this sort. Nevertheless, the Commissioners put an engine of severe punishment in motion, before obtaining an accurate knowledge of the circumstances post mortem. Thus they are a semi-medical body in constitution, whilst employing no deliberative process by which their title to that distinction would be established. The whole proceeding strongly displays the real regard of Commissioners for Superintendents, whom they seem not unwilling to victimize in marching after popularity. Circumstances of this painful kind not only display a deplorable absence of the right relation between the two bodies, but, together with the other medical matters of collision, also show that the Commission is pretending to preside over our affairs, without the necessary qualification and without liberality. That is a course not to be persisted in without public inquiry. . . . . .

"Whilst, then, the Commission retains its present mixed character, unanimity of opinion and uniformity of action amongst Superintendents can alone save the degradation of asylums and the personal derogation of their chief officers, both of which may be foretold as sure results, in due season, of the present theory and practice of the Commission. It is a question for the Association whether it is not now called upon prudently to influence its members who are Superintendents, inducing them to moderate that too ready spirit of conciliation and encouragement—that disposition to repose faith and give honour, before the proof has been obtained that honour and confidence are due. Many circumstances have arisen of late years which ought to incline Superintendents officially to regard Lunacy Commissioners with a feeling approaching to suspicion."

We are glad to observe from the proceedings of this increasingly large and influential association, that its next annual meeting, on the motion of Dr. Stewart, the Honorary Secretary for Ireland, is to be held in Dublin, for the first time since its establishment, upwards of ten years ago. The President elect for 1859, we perceive, is Sir Charles Hastings, of Worcester—a gentleman who, however eminent and well known as a respected and leading member of our common profession in England, is unknown as a psychologist, and we are free to confess that in a specialty, like the Association in question, we consider that unless the list of highly qualified men were totally exhausted—which we cannot believe that it is or can be—the honourable position of President should not be conferred upon those who are of no weight or authority, whether by their matured experience, writings, or otherwise, in the insanity department of the profession. We make these observations without meaning the slightest disrespect to Sir Charles Hastings, but simply on principle, and for duly upholding the proper status, influence, and independence of an invaluable Association, provided that it can be kept clear of cliqueism, and not made a tool of in anywise to raise the vanity or promote the selfish interests of any man or set of men. We have neither time nor space to particularize the other interesting portions of this Number of the Journal, except its concluding editorial article, headed, "The Newspaper Attack on Private Lunatic Asylums," which is written with considerable spirit, point, and ability, against the newspaper press writers for their reckless onslaught and "hounding on the dogs of war," from the "Thunderer" down to the meanest "rag," upon a whole class, because one of their order grossly abused, or rather, in an evil hour, permitted himself to abuse his trust: a line of procedure which, to say the least of it, was unfair and un-English in the extreme, and most derogatory to the so-called "Fourth

Estate," for which we have the highest respect, and whose enormous power for good or for evil cannot be denied. But on this very account that estate should be careful not to ignore justice altogether, in a mistaken and rabid desire to serve the public. And here we feel it only a matter of duty to observe that, excepting this most unjustifiable conduct of Mr. Metcalfe, and his utter forgetfulness of what he owed to "the weaker vessel," to his profession, and to himself, his antecedents were all in his favour—nay more, highly to his credit, and his conduct as the proprietor of a private asylum such as to win for him the affection and esteem of his patients generally, for his always humane, considerate, and irreproachable bearing towards them. No doubt he met with the veriest Tartar in the person of the female patient who escaped from his care, and in endeavouring to recapture whom he placed himself in so unbecoming and so false a position. Under such circumstances, therefore, some sympathy is due to Mr. Metcalfe, and most undoubtedly justice should be mingled with mercy towards him, as we hope ultimately it will. There is a sentence in this "newspaper attack" article, a portion of which we cannot pass by unnoticed. The writer says :—"In referring to any defect in the Lunacy Statutes, although it may exist but in theory, it is but just to that great and good man who *reformed the treatment of the insane in Ireland*," &c. We have italicised the portion we must join issue upon with the able editor who penned it. "The great and good man" referred to we presume to be Lord St. Leonards, so well known in Ireland as Sir Edward Sugden. What his special greatness and goodness were, we shall not now stop to inquire; but we demur altogether to the statement made, that he reformed the treatment of the insane in Ireland. The treatment of that class, in both public and private asylums in this country, was unexceptionable, enlightened, and humane, time out of mind, so to speak, before Sir Edward Sugden set a foot upon Irish ground, or his dreaded name was lisped in the halls of our law-courts. Sir Edward Sugden "reformed the treatment of the insane in Ireland" in this way, namely, he was the instrument with the Government of the day in having imposed upon our public asylums a code of "general rules, made, framed, and established by the Lord Lieutenant and Council of Ireland, March 27, 1843," which in its chief points was impracticable; and from that time to the present has been felt as a most grievous incubus, and the cause of much heart-burning and discord here and there in the district asylums. One of the rules in this code was—that, too, upon which the entire good management of the institution hinged—

that an *extern* official, in the person of a visiting physician, to attend thrice a week (except in such asylums in which the number of patients exceeded 250), should direct the course of moral and medical treatment of the patients, their amusement and employment! Now could anything have been more preposterous than this? Well, so preposterous was it found, that the rule became a dead letter in practice, and a new order of things took its place, that of putting the power into the hands of a resident, instead of a non-resident or visiting physician. Again, "this great and good man,"—as our contemporary chooses to style him, in the plenitude of his editorial good-nature and gratitude, not in the spirit of toadyism, we feel assured,—by a stroke of his then all powerful Lord Chancellor's pen, deprived the officials of the benefit of obtaining retiring allowances by scoring out a clause in a Bill which afterwards became an Act, providing for the same on a liberal scale; and not until the expiry of more than twelve years afterwards was this boon (on a very miserable scale, however), squeezed from Parliament for so deserving and hardly pressed a class of officials. Such were some of the *good* deeds of this "great man" in connexion with the "reforming of the treatment of the insane in Ireland," and, having thus plainly stated them, there we shall leave the matter.

21. The only Number of the 'American Journal of Insanity" which we have received since our last Review, is that for April of the present year. It opens with an able paper on "Moral Insanity" which is well worthy of perusal; and the following conclusions at which the writer arrives on this peculiar species of perversion of the moral faculties appear sensible and just:—

"The general tendency of the doctrine of moral insanity is bad, whatever show or real feeling of humanity there may be in it. It is bad in a religious view, because it tempts men to indulge their strongest passions, under the false impression that God has so constituted them that their passions or impulses are not generally governable by their will or their reason, and that, therefore, there is no punishable guilt in indulging them. This is fatalism. It is bad in a legal view, because it protects from due punishment offences which, with the self-denial and self-control that men rightly trained and rightly disposed are quite capable of exercising, might be avoided. It tends to give to bad education, loose habits, vicious indulgence, neglected parental control, and disobedience to God, an immunity from the prescribed penalties of crime, that is not warranted by the Scriptures, the law of reason, or any codes of human law that assume to be founded on the law of reason or the law of God. We cannot, therefore, concur in recognising as physical disease, without clear

absolute proof of its being such, after a most thorough examination by the most thorough experts, any distinctive form of insanity that is so liable to disorganize and nullify the code of criminal law as moral insanity is. It is elastic enough, if well stretched, to cover every possible shade and degree of criminality, that has not a transparent guilty nature. It has already been made a cloak for homicide, arson, theft, lying, and drunkenness, under characteristic though somewhat barbarous terms. It has almost protected the most conventional of all crimes, forgery; and probably would have done so if the dead languages could have supplied a proper-sounding phrase to describe such a novel form of mania, and that would delude courts and juries into a belief that such a phrase implied some scientific or psychological discovery to take the guilt out of sin, and convert crime into innocence; which, we conclude, is the ultimate result of the doctrine of moral insanity."

There are several other papers, &c., in the Number before us, of this well-conducted Journal, which, however, we are unable in this Review, already so greatly extended, to take any special notice of. We wish that, for the future, means would be taken to supply it regularly as it comes out, and not only now and again, as has been the case latterly.

22. During the year which ended on the 31st March, 1858, the patients treated in the Belfast District Hospital for the Insane are thus stated and accounted for in the twenty-eighth Annual Report of that Institution:—

	M.	F.	T.	M.	F.	T.
In House on 1st April, 1857, ...				188	142	330
Admitted since, New Cases,	65	68	133			
Relapses,	6	8	14			
	—	—	—	71	76	147
Total under treatment during the year, . .				259	218	477
Discharged, recovered, . .	38	44	82			
Do. relieved, . .	14	12	26			
Died, ...	14	11	25			
	—	—	—	66	67	133
Remaining under treatment on 31st March, 1858, ...				193	151	344

The total Admissions during the year were 5 more than in 1857. The daily average number of patients during the year was 342·59.

Notwithstanding the large additions made to the Institution a few years back, it, like so many other similar establishments, has had greater demands on it than it had the means of

accomplishing during the past year, as the annexed extract intimates:—

"The House, throughout the year, has been not only full, but overcrowded, as will be seen by the average daily number, exceeding 340; whereas, properly, there should not have been more than 330, and not even this latter amount treated without a strain on the capabilities of the establishment; but, owing to extreme urgency occurring in individual cases, together with endeavouring to avoid delay in the admissions in general, which seldom happened, the numbers have gradually increased, as stated, thus making a pressure in the house extremely irksome, and embarrassing in many respects. Establishments for the treatment of the insane should not, according to the repeatedly and unanimously expressed views of the best and most experienced authorities, exceed 250 (under the one roof), that number being considered the largest which can be treated efficiently, and have fair justice done to all parties—inmates and officers.

"At the present time the cases on the books for admission, as vacancies may arise, are 9.

"Fully two-thirds of the patients in the house are of the so-called incurable class—a class, however, requiring, for the most part, as much constant care and supervision as any other. And it is only proper to observe, and a point, too, strongly to be dwelt upon and maturely weighed, that, though this term 'incurable' holds good so far as regards its subjects being never again fitted to take their places in the busy world, yet the greater proportion of them is comparatively sane (and, to the casual observer, would appear entirely so), whilst under regular and systematic treatment and supervision, and capable of both enjoying and appreciating the means using for their care and benefit. This, in itself, is a great amelioration of so dreadful an infliction as insanity; and the thinking and humane portion of the community will see from this, that, though every Hospital for the Insane is populated as thus indicated, yet they are still fulfilling their important purposes very decidedly and beneficially, and, as regards society at large, doing not a little for the protection both of life and property, by having such cases secluded from extern excitement."

The social condition of the patients admitted during the year, is given as follows, and from which it will be seen that more than two-thirds were of the "single" class, thus favouring the belief that "single blessedness" is inimical to mental health:—

Social Condition of the 147 *Cases admitted during the year.*

	M.	F.	T.
Married, ...	19	19	38
Single, ...	50	48	98
Widowers and Widows, ...	2	9	11
Totals, ...	71	76	147

Two other interesting Tables are the annexed in regard to the ages of the patients discharged recovered, and the time they were under treatment, the largest number cured being from 30 to 40 years of age, and as to time, from three to six months, gradually decreasing afterwards, in the latter respect the longer continuance of the disease adding to its intractability:—

Ages of the 82 *Patients discharged Recovered during the year.*

	M.	F.	T.
Under 20 years,	2	4	6
From 20 to 30 years,	9	7	16
„ 30 to 40 „	8	9	17
„ 40 to 50 „	7	8	15
„ 50 to 60 „	9	7	16
„ 60 to 70 „	3	9	12
Totals,	38	44	82

Period of time the 82 *Patients discharged Recovered were under treatment.*

	M.	F.	T.
Under 3 Months,	8	5	13
From 3 to 6 Months,	14	17	31
„ 6 to 12 „	7	9	16
„ 1 to 2 years,	7	5	12
„ 2 to 5 „	2	7	9
„ 5 to 10 „	0	1	1
Totals,	38	44	82

The deaths which occurred during the year were in much smaller proportion than usual. On this head Dr. Stewart observes:—

"The death cases during the year, it will be seen on referring to the obituary table, were but 25 (14 males, and 11 females), being considerably less than last year's, when the number was 38. It may be observed, too, that there was a larger number under treatment, both in the aggregate and the daily average, throughout the past year, than the preceding one,—the former being 477, compared with 459 in 1857; and the latter 342, compared with 323; thus making the difference in this respect still more in favour of the past year, when the per-centage of deaths, calculated on the average daily number under treatment (which is the fairer method of taking it, and not on the total number), was under 8 per cent., an unusually low average in these institutions, which may be set down at between 10 and 11 per cent., and still not considered great. It is also to be remarked, that three of the deaths did not come under the ordinary category—one, for instance, was but six hours in the house when death suddenly occurred, from heart disease, of which the deceased

had been the subject for some time previously. In the second case a fatal issue was inevitable, the patient having been received from gaol in a completely prostrated state from the effects of a severe wound he had inflicted on himself with a suicidal intent; and, in the third, one of the females terminated her existence by suspending herself, by means of a bed-sheet, in a very ingenious and effective manner, from the window in her bed-room, between night and morning, on which a coroner's inquest was duly held by J. K. Jackson, Esq., when a verdict, in accordance with the above facts, was unanimously arrived at, and the immediate attendant in charge, and the establishment, exonerated from all blame in so unfortunate a catastrophe, but one which no human foresight could by any possibility have prevented. Indeed, it may be stated, on this head, that, considering the large number, always, of cases in every asylum, with a suicidal propensity strongly marked in them, and who are unceasingly on the watch to accomplish their purpose—and this, too, in the most unlooked-for and unsuspected methods—the surprise is, that so few are enabled to carry out the one object upon which their remaining faculties are entirely concentrated. The other causes of death were, viz.:—General debility, 8 (4 males, and 4 females); maniacal exhaustion, 5 (2 males, and 3 females); pulmonary consumption, 3 (1 male, and 2 females); apoplexy, 2 (both males); heart disease, epilepsy, paralysis, and scrofulous disease, each one (all males). The oldest male in the mortality list of the year was 73, and the youngest 19. The oldest female 65, and youngest 18. It should be observed, before dismissing this head of the Report, that the last year saw the conclusion of the mortal career of the first inmate received into the house, on its opening in 1829. This was a female, whose incumbency extended to the long period of twenty-eight years and upwards, and in whose history one or two matters worthy of notice here may be glanced at. During the progress of the building of the Asylum, this patient was known to have come to see it, and to have marked out a particular room for herself, she having a presentiment of approaching insanity, and one which proved to be too true. Having been under treatment some months, she had become, to all appearances, perfectly convalescent, and fitted for removal; but the very day on which her husband came to take her home she relapsed, and from that period to her dissolution there was never any further mental restoration,—severe and frequent attacks of high maniacal excitement periodically occurring all the remaining portion of her lengthened inmateship. During her abode in the house both her son and daughter were likewise patients. The former made a good recovery some years ago, the latter died under treatment, many years prior to her mother's decease, who, in neither instance, would admit that they were her children; but who, nevertheless, and more especially in the case of her daughter, manifested, in various ways, that a mother's love and feelings, however obtuse and dormant they might have become from the effects of long-continued mental disease, were still by no means obliterated."

The vexed question of restraint is thus shortly alluded to, and in a manner that none but the most fastidious and ultra humane could take exception to, and upon such it would only be the height of folly to waste words:—

"The cases requiring mechanical restraint during the past year were very few, as usual, it being the exception to the rule, the most perfect freedom not being enjoyed by all the inmates; and this not as a novelty during the past year only, but every year since the institution came into operation. Nor would this point of detail be now referred to at all, only that it appears called for, to place on record, that cases will arise from time to time, which not to restrain in their maniacal fury by the application of a strait jacket, or otherwise, would be nothing short of madness on the part of those charged with their treatment and the safety of the patient, as well as that of the attendants."

The fact of Ireland having taken the lead, and being beforehand so many years—now upwards of thirteen—with the sister country, in having the great and important advantages of an entirely distinct institution for "criminal lunatics"—those guilty of offences of more or less gravity, and acquitted of the penal consequences of the same on the ground of insanity—is mainly, if not altogether, attributable to the persevering efforts of the authorities of the Belfast District Hospital for the Insane, who thus succeeded in establishing a principle which is only now being recognised in England, and which never would have been, is quite manifest from the difficulties so long placed in the way of the Commissioners in Lunacy there, but for the great fact staring the authorities in the face of the existence of that principle in Ireland, who thus had to yield ultimately, and with no very good grace either, as we have already observed in the course of this Review, in giving one to England also. On this subject the Belfast Report has a paragraph which we annex, and with reference to which—should it so occur that fine-drawn distinctions will be attempted in order to evade the spirit and letter of the law, as seems to be apprehended by imposing criminal lunatics, whether stamped with major or minor offences, we take for granted that such will be firmly resisted, and no such contaminating element again permitted to find an entrance into our district hospitals for the insane. The Legislature has settled that point; let, then, others, whose bounden duty it will be, and especially the Inspectors, look narrowly to it, by not permitting or sanctioning the rights of the ordinary insane patient to be infringed upon in the slightest degree in this respect. The subject is a most important one to the character and best interests of our public asylums throughout the country, and should

be rigidly watched, as we shall feel it our duty to do now, as formerly, when we called special attention to what, at the time, appeared to us a very suspicious looking proposition in the Inspectors' Parliamentary Report, in reference to relieving the Central Asylum at Dundrum of its superfluous criminal inmates[a].

"In last year's Report it was stated that the establishment had then, happily, become entirely free from inmates of the 'criminal lunatic' class, which was so great a desideratum, and one for the accomplishment of which the Governors of this Institution were the first to bring before the proper authorities, and to continue doing so, year after year, until, ultimately, an Act was passed for the establishment of a Central Asylum at Dundrum, for the removal to, and future charge of, all cases acquitted of criminal offences on the ground of insanity. This freedom from such exceptional inmates will, it is to be hoped, be continued intact; and that no relaxing of the law will be had recourse to, to reconvert these institutions into gaols, for the 'custody of lunatic prisoners' of any description. The Act of Parliament above referred to is very explicit on this head, it distinctly enacting, 'that whenever, and so soon, as the said Central Asylum shall be erected, and fit for the reception of criminal lunatics, it shall be lawful for the Lord Lieutenant to order and direct that all criminal lunatics then in custody in any lunatic asylum or gaol, or who shall thereafter be in custody, shall be removed, without delay, to such Central Asylum, and shall be kept therein so long as such criminal lunatics, respectively, shall be detained in custody' (section 8); and that 'the interpretation of criminal lunatic in the Act shall be construed to mean any person acquitted on the ground of insanity' (section 26)."

The Report mentions a "public court" having been held at the Belfast Asylum, by the Commission of Inquiry on Lunatic Asylums in Ireland, to the objects and constitution of which Commission we referred in our Review last year[b]. Two years and upwards have now elapsed since that Commission was issued, and yet to the present time no Report of their labours, over which they have been so long incubating, has yet seen the light of day[c]. The following is the reference Dr. Stewart has made to the above Commission :—

[a] See vol. xvi., No. 32, November, 1853, page 368.

[b] Vol. xxiv., No. 48, page 378.

[c] This Report has been issued as these sheets were passing through the press, and, in company with it, a reply by Dr. Nugent, the senior of our Irish Inspectors of Asylums; who has found it necessary to at once openly refute many of the statements contained in it. So important is the subject, that we shall notice both Report and Reply in our next Number.

"In May last the Commissioners of Inquiry on the Lunatic Asylums of this country held a public court here, in regard to the general management of the Institution, which was attended by a large number of the Board of Governors, and some others. The inquiry was conducted by examination on oath, and lasted an entire day. To the present time no Report has been made by the Commissioners, so that nothing is known of the changes which may be recommended by them in the existing state of the Asylums. Some additional returns have been called for by the Commisioners, and duly supplied to them."

The financial portion of the Report affords the following particulars of the expenditure incurred during the year, with which we close our remarks on this long-established provincial hospital for the insane:—

	£	*s.*	*d.*
Paid for provisions,	2861	14	2
Do. Clothing,	634	1	3
Do. Bedding,	167	19	10
Do. Furniture,	54	13	8
Do. Fuel and light,	320	11	10
Do. Soap, candles, &c.	115	13	4
Do. Stationery and printing,	40	16	10
Do. Advertising,	3	3	6
Do. Medicine, including wine and malt,	39	14	3
Do. Repairs and alterations,	309	17	3
Do. Farm and garden expenses,	52	17	10
Do. Insurance,	22	12	6
Do. Incidental expenses,	75	0	9
Do. Salaries and wages,	985	19	2
Do. Postage,	5	0	6
	£5889	16	7
To balance due the public,	1039	18	0
	£6929	14	7

23. The pamphlet entitled "The Parish Will Case" by Dr. Pliny Earle, need not be more than noted in this Review, however important to the parties concerned, it not containing anything that would particularly interest our readers on this side of the Atlantic. The author, Dr. P. Earle, the most eminent psychological physician in America, was called upon to give his professional opinion as to the soundness of mind of Mr. Parish, and his capability of disposing of his immense fortune by certain codicils; and the opinion he arrived at was,

and we think most properly, that Mr. Parish was "disqualified from the execution of the codicils in question, or the transaction of any important business." The pamphlet is exceedingly ably written, and the points of the case well argued, and does great credit to Dr. Pliny Earle for its clear and logical reasoning.

24. The volume in our list, entitled, "The Causes of Idiocy," is little more than the substance of a Report drawn up by Commissioners appointed under the authority of an Act of the Legislature of Massachusetts, in the year 1846, "to inquire into the condition of the idiots of the Commonwealth, to ascertain their number, and whether anything can be done in their behalf." Dr. Howe was one of three Commissioners thus appointed, and the Report, with its Appendices (of which there are six) and the Introduction, appear to have come from his pen.

In this volume the general reader will find a good deal to interest, and the professional man also some facts whereon to plant his leverage, moral and physical, whereby he may be disposed to endeavour, if not the entire removal of this evil from society (which, however, Dr. Howe thinks perfectly practicable), at least its alleviation.

Speaking of Dr. Howe's theory on the subject, which is thus announced, (p. 3), we are hardly disposed to go the entire length laid down, as regards either the evil or its proposed remedial treatment. The author's words are as follows:—

"It (idiocy) is merely the result of a violation of natural laws, which are simple, clear, and beautiful; which require to be seen and known only in order to be loved; and which, if strictly observed for two or three generations, *would totally remove from any family, however strongly predisposed to insanity or idiocy, all possibility of its recurrence.*"

Much in the same strain the author writes:—

"It may be assumed as certain, that in all cases where children are born deformed, or blind, or deaf, or idiotic, or so imperfectly and feebly organized, that they cannot come to maturity under ordinary circumstances, or have the seeds of early decay, or have original impetuosity of passions that amount to moral insanity, in all such cases the fault lies with the progenitors, &c. &c."

Now we hold such statements to be quite too strong. However judicious and good the prophylactic measures recommended by Dr. Howe may be (and we fully admit their judiciousness), and however large his induction, grounded as it is on the

case and statistics of the State of Massachusetts, we are not Utopian enough to believe that this malady, whether viewed in its physical or moral aspect (and it admits of both), will ever be eradicated from among the ills to which our common humanity is heir, even although Dr. Howe's remedies were universally adopted. Neither can we subscribe to the *dictum* last quoted. Experience is against it, as well as our *a priori* judgment. To say that idiocy is the universal result of viciousness in the parent, and that its appearance among us is unquestionably a proof of sin, would be, in our judgment, to treat the matter exactly as the disciples of the Great Teacher were disposed to treat the case of the man born blind, as recorded in the Gospel. The reply given to them is familiar to all, and, we think, will fully apply to the case before us also. With these exceptions, we can, however, cordially recommend Dr. Howe's book to professional and general attention and perusal.

25. The Report "On Insanity and Idiocy" in Massachusetts, by the Commission on Lunacy, and drawn up, it appears, by Dr. Edward Jarvis, is a very elaborately prepared State document, one which contains a large amount of matter of considerable local interest, and in no small degree general also. There is the greatest variety of statistical information in well-arranged, and, to all appearances, most carefully prepared tables in this volume, and altogether it is one calculated, we feel quite satisfied, to benefit those for the amelioration of whose pitiful and deplorable condition this means was taken to lay the foundation of plans that would afford permanent accommodation of the most humane and complete kind, in all its details.

26. After our Review had been, as we thought, completed, a copy of Dr. Cantor's Report on the Asylums for European and Native Insane at Calcutta reached us; and, not wishing to hold it over until our next Annual Review on Insanity, it being the first which we have seen in connexion with the state of the insane in our East Indian possessions, we have thought it better on the present occasion to give a notice, however necessarily short and incomplete, of its interesting contents.

The Report embraces a period of two years, namely, 1856 and 1857, for the Asylums at Bhowanipore and Dullunda, respectively.

The former one, for European patients, is situated about a mile from Fort William, close to the General Presidency Hospital, and is stated to be most eligibly circumstanced, both as to salubrity

and seclusion, which are two primary requisites for such an Institution. The ground attached to it, we regret to find, is exceedingly limited, being little more than two acres; it is thoroughly drained, and during the hottest season the temperature is nearly two degrees lower than that of Calcutta, while to the feeling it appears more considerable. In the first instance this Asylum was opened as a private one in the year 1817, but on no definite plan, and has since been added to from time to time. It is intended for both male and female patients, the accommodation altogether being calculated for 62, but in 1856 there was a maximum of 81 pressed into it, which, in a tropical country, and with only two acres of ground,—when properly there should have been from fifteen to twenty at least,—was a very adverse state of things for the health, comfort, and treatment of its inmates. It is no reasonable excuse to say that the Asylum is only intended as a temporary one for European patients, preparatory to sending them home ultimately; it is to all intents and purposes an Hospital for the Insane, and to be constantly used as such, and should accordingly be placed on a more liberal scale of accommodation in all essential respects, and none is of more consequence than an area, not of the smallest possible, but of the largest limits, the crowding such an establishment, and in a country under a burning sun, being, as Dr. Cantor most properly observes, much to be dreaded.

The following account of the wards, &c., will be read with interest even in this country:—

"The wards are well raised, and each room is provided with a window out of reach, and with a door half panelled, half grated. In Bengal such construction is preferable to solid doors with inspection plates, which here would obstruct the free circulation of air. Whenever required, the rooms can be darkened by means of a canvas curtain; but they are not lofty enough to admit of punkahs being slung. Each patient is, therefore, supplied with a palm-leaf fan. The doors are made to open outwards on a common verandah, which being screened by venetians and canvas curtains, offers shelter from the sun and wet. The verandahs during the day also serve as mess and lounging rooms, and are lighted at night. For the wooden bedsteads formerly used in the private Asylum, iron cots of the pattern used in European hospitals, without hinges, have been substituted, as they combine the double advantage of cleanliness and strength to bear attempts at breakage. They may also, whenever required, easily be fixed to the floor. As a general rule, bed utensils are suffered to remain in the rooms in cases of bodily diseases only, as each ward is provided with an easily accessible and airy privy and bathing room, with shower and ordinary baths. The floors are stuccoed, and either

unmatted or covered with loose mats, and so constructed as to admit of baths being administered at a moment's notice. In cases of bodily diseases, and during paroxysms of violence, the patients are treated in their own rooms. The absence of effectual means of seclusion, and of padded rooms, is a serious defect in the original construction of the Asylum. A single violent patient is sure to produce a number of imitators, who keep not only their own wards, but the whole Asylum, in a state of excitement. Want of space and of accommodation also offers material obstacles to the necessary occupation and recreation of the patients. An early application for the services of the Civil Architect to remedy such evils was speedily responded to, and plans have accordingly been prepared. The garden which surrounds the different wards is well laid out, and has, during the years 1856 and 1857, been liberally stocked from the Honourable the East India Company's Botanic Gardens. Indeed, it imparts to the Asylum a pleasing feature of rural quiet. The boundary walls being carefully kept out of view by luxuriant creepers, nothing which can remind of even the ordinary restraint of a hospital has been left. The garden, which is exclusively devoted to the enjoyment of the patients, might be taken to be a gentleman's carefully tended pleasure-ground. It is, however, of too limited extent, considering the paramount importance of extensive pleasure-grounds."

The views expressed in the annexed paragraph are also much to the purpose:—

"In most great asylums in England, the wards are classed in refractory, epileptic, paralytic, and convalescent wards, and one for dirty patients. It has, however, been observed that the disadvantage of a too rigid classification is, that it is apt to create so many intellectual castes, and to make the patients act or assume the part implied by the name of the ward. Chronic insanity is generally benefited by intercourse with sensible people. In the middle of the garden is situated a two-storeyed building, in no wise differing from any other Indian suburban villa. The ground floor contains the following accommodation:—an ante-chamber, where the dishes are served and carved; a dining-hall with punkahs, a side-room used as office and reading or lounging-room; two double and ten single apartments, occupied by gentlemen and lady patients. The apartments are cheerful, and open to the garden. They are furnished and lighted with hanging lamps, and have one corner partitioned off as a bath. The upper story consists of ten rooms, occupied by the apothecary, the matron and her husband, and an overseer. The hall, however, and two of the rooms are reserved, whenever required, for the use of a convalescent lady or gentleman. At first, before all the subordinate officers had joined, the upper storey was divided between the Superintendent and two of the subordinates. Such arrangement, questionable at best, was attended with a most serious objection.

The consequence of the Superintendent's living among, and being at all hours in immediate contact with the patients, led by degrees to the loss of the moral influence, the authority, which it is of the utmost importance that officer should possess over his patients. By comparison with the Asylum for Native Insanes, which is situated at a short distance from Bhowanipore, the difference in the Superintendent's moral power over the patients soon became very marked. It is necessary, or at any rate desirable, that the Superintendent should reside on the premises. But to preserve his moral influence, which is of vital importance in lunatic asylums, the quarters of the Superintendent should be perfectly isolated."

The dietary of the Asylum is as follows:—First-class table: Breakfast—eggs, fish, steaks, chops, cold meat, rice, fruit, preserves, tea, coffee. Dinner—soup, joints, or poultry; side dishes—vegetables, pastry, fruit, preserves; sherry, port, beer, lemonade, iced when desired. Supper—tea, and toast.

Second class, full diet:—Beef or mutton, bread, vegetables, butter, tea, rice, milk, sugar, flour, fruit, &c. &c. The patients are divided into two classes, solely according to their station in life, but with no reference to their means, and the two scales of dietary have been fixed according to the patient's previous social position. Both classes are equally open to poor patients, the first being composed of covenanted or commissioned officers, gentlemen unconnected with the public service, and members of their families. The second class consists of troops of her Majesty's and the Company's service, and of persons of either sex (Europeans or East Indians), unconnected with the public service.

The non-restraint system is practised by Dr. Cantor to the utmost possible extent, mechanical restraint being only had recourse to in cases of unavoidable necessity. On this subject Dr. Cantor expresses himself thus sensibly:—"Restriction in some form or other is *inseparable* from an asylum. Dr. Conolly himself allows certain exceptions in points for which the malady intrinsically disqualifies insanes." Particular instances in which restraint is unavoidable are then cited, where "rigid fingerless gloves, and a strait waistcoat, have been found beneficial." Dr. Cantor further and pointedly observes on this subject:—"How to meet them" (certain specified cases) "without having recourse to some humane contrivance for mechanical restraint, is a problem which, however, those philanthropists who have carried the non-restraint system to its greatest perfection have left subjects of speculation." The state of the Asylum as to admission, &c., during the year 1857, was as follows:—

	M.	F.	T
Remaining under treatment, January 1, 1857, ...	39	23	62
Admitted since, ...	29	4	33
Total under treatment, . . .	98	27	95
Discharged, recovered, ...	9	0	9
,, improved, ...	1	3	4
Dispatched to Europe, ...	25	2	27
Died, ...	4	0	4
	39	5	44
Remaining in Asylum, December 31, 1857, ...	29	22	51
	68	27	95

The professions and occupations of those admitted during the above period were:—Captains, 2; lieutenants, 3; assistant-surgeon, 1; priest, 1; surveyors, 3; medical subordinates, 5; soldiers, 21; seafaring men, 13; tradesmen, 4; writers, 9; no employment, 6; gentlewomen, 3; soldiers' wives, 7; tradesmens' wives, 27. Total, 95.

The countries to which the patients admitted belonged were:—England, 14 (13 males, 1 female); Scotland, 6 (males); Ireland, 23 (18 males, 5 females); Wales, 1 (male); Spain, 2 (males); Sweden, 1 (male); America, 1 (male); East Indies, 44 (24 males, 20 females); Armenia, 2 (males); Africa, 1 (female). Amongst the supposed causes of insanity the following are the principal:—Intemperance, 22 (18 males, 4 females); religious enthusiasm, 14 (11 males, 3 females); epilepsy, 9 (6 males, 3 females); domestic distress, 7 (2 males, 5 females); congenital, 5 (2 males, 3 females); masturbation, 3 (males).

The causes of death were—exhaustion, dysentery, cholera, old age, each, 2—hemiplegia, abscessus cerebri, apoplexy, diarrhœa, and caries, each one. The Report contains the particulars of the post-mortem examinations which were made in the above, which are full and suggestive. The rules and regulations for the management of the Asylum, the Physician-Superintendent being properly vested with the fullest authority, are embodied in the Report, and appear well adapted for their purpose.

The Asylum at Dullunda is for pauper natives alone, and is a mile to the southward of Fortwilliam; it covers a little more than nine acres, and is occupied by Hindoos and Mussulmans. The following was its state for 1857:—

	M,	F.	T.
Remained under treatment, 1st January, 1857, ...	206	55	261
Admitted since, ...	154	52	206
Total admitted and readmitted, .	392	122	514
Discharged, cured, ...	64	18	82
„ improved, ...	66	13	79
Died, ...	62	30	92
	192	61	253
Remained, 31st December, 1857, .	200	61	261
	392	122	514

The causes of the deaths in the above table were as follow:—Dysentery, 32 (23 males, 9 females); diarrhœa, 15, (7 males, 8 females); exhaustion, 13 (8 males, 5 females); disease of lungs, 8 (males); epilepsy, 6 (4 males, 2 females); old age, 6 (3 males, 3 females); cholera, 4 (3 males, 1 female); anasarca, 3 (2 males, 1 female); apoplexy, convulsions, enteritis, epilepsy, erysipelas, and hepatitis, each, 1 (5 males, 1 female). Total, 92.

The native insane patients are stated by Dr. Cantor to be generally much more manageable than Europeans. The non-restraint principle is the rule in force at Dullunda, in the same manner as at Bhowanipore. In regard to their occupation, Dr. Cantor observes:—

"In 1856, in the Asylum of Dullunda, a plot of ground was under cultivation with sugar-cane; some of the patients assisted the gardeners, and a few, the cooks. The occupation, however, left something to wish as far as regarded adequacy and regularity. Employment of insanes, having for its permanent aim the well-being and possible cure of the patients, is a means to those ends only. What will pay or prove remunerative, need not be lost sight of,—but as a secondary consideration. If the labour be not perfectly voluntary, but be suffered to become compulsory, not only will the object in view be lost, but what was wholesome becomes the very reverse. This is precisely the point of difference between the labour of insanes and of prisoners. Much more work might be done than the number of hands do at Dullunda, but then it could only be effected by compulsion."

The dietary and clothing of the Dullunda patients are given in the annexed extract:—

"The patients are dieted and clothed by private contract at a fixed monthly rate of Rupees 3 for each patient. The provisions are submitted to daily examination, to insure their quality and quantity being unexceptionable. They are far superior to those which the patients, who almost all belong to the poorest class of natives, are accustomed to in health. To the majority, who on admission present a sad spectacle, the Asylum must appear like a grand mansion, and the effects of comfort and regularity soon become apparent in an improved physical condition. The following scale of diet has, during a number of years, obtained in the Asylum, first at Russapuglah, and later at Dullunda.

"At 6 or 7 A. M.—Wheat porridge, 2 oz.

"At 10 or 11 A.M.—Rice, 10 oz.; pease, 4 oz.; vegetables, 4 oz.; salt, $\frac{1}{2}$ oz.; spices, 2 drachms; butter, 2 drachms; sugar, 2 drachms; betel-nut, $\frac{1}{4}$; paun-leaf, 1; hookah tobacco, 2 oz.

"At 5 or 6 P. M.—Rice, 8 oz.; beef or mutton, 4 oz.; fish, 4 oz.; vegetables, 4 oz.; oil, 2 drachms; salt, $\frac{1}{2}$ oz.; spices, 2 drachms; betel-nut, $\frac{1}{4}$; paun-leaf, 1; hookah tobacco, 2 drachms. Buttermilk, 12 oz., and potatoes, 8 oz., are allowed once a week. This is a bare standard scale of full diet, to which are added daily indulgencies, such as sweetmeats, cigars, fruit, &c., as rewards for good conduct. The hospital diet is modified according to each individual case. Extra articles, such as poultry, milk, tea, bread, &c., are separately accounted for; wine and spirits are obtained through the Commissariat Department. The clothing consists of the few articles of dress worn by the poorer classes of natives of Bengal. Each patient is supplied with a woollen blanket, three or four yards of cotton cloth, a sleeping mat and bedding of gunny. Shoes are articles of luxury, and given as such, when asked for. The great majority of patients are admitted in a state bordering upon nudity, and are, therefore, on discharge permitted, not only to retain the Asylum clothing, but the magistrate of the 24-Pergunnahs bestows charities to speed the penniless to their distant homes."

We are unable, from press of time, to devote more attention or space to this excellent Report of Dr. Cantor, and cannot conclude our review of it without expressing our great satisfaction at finding that the insane patients in the Bengal Presidency are under the care of a member of our profession of such enlightened and eminently humane views as Dr. Cantor, whose Report in all its details does him the highest credit. The Government also deserve much praise for the liberal spirit in which they seem disposed to provide for the due treatment and maintenance of both the European and native insane of Bengal.

Lectures on the Diseases of Women. By Charles West, M.D., &c., &c. Part II.—*Diseases of the Ovaries, &c.* London: Churchill. 1858. 8vo, pp. 247.

The first volume of these Lectures we noticed at considerable length in our pages[a]. We felt much pleasure in bestowing upon it the highest praise, though not more than it deserved. The second and concluding volume now appears, and within the period specified for its publication. The subjects of which it treats are:—Inflammation of the Uterine Appendages, and of the Pelvic Cellular Tissue; Uterine Hematocele; Ovarian Inflammation and Tumours; Diseases of the Female Bladder; Diseases of the Urethra and Vagina; Diseases of the External Organs of Generation.

Inflammation of the pelvic cellular tissue (or pelvic cellulitis, as it is frequently called) is a subject of much interest, and one to which a good deal of attention has been directed of late years, owing to the writings of Doherty, Lever, Churchill, Grisolle, and others, although the disease was very well known to many of the older accoucheurs, and has been well described by Puzos. Dr. West's account of it is clear and comprehensive. The most frequent seat of this inflammation he considers to be the cellular tissue contained within the folds of the broad ligament, such having been its seat in *thirty-four* out of fifty-two instances.

Next in frequency he finds are the cases where the cellular tissue between the uterus and rectum is affected; while those in which the cellular tissue between the uterus and bladder is attacked are much rarer. Inflammation of the cellular tissue underneath the parietal layer of the peritoneum, between it and the abdominal muscles (the external peritonitis of some writers), he thinks, is of very rare occurrence as an idiopathic or original affection, and in this our own experience entirely bears him out; but that it is not unusual as a complication or extension, we might say, of cellulitis of the *ligamentum latum uteri.* It is now well known that this disease may come on independently altogether of previous delivery or miscarriage; and Dr. West further shows that in this class of cases the tendency to suppuration and the external discharge of pus is as great as in the cases where the cellulitis succeeds to parturition, since it happened in *nine* out of fifteen instances of the former kind, and in *eighteen* out of thirty-seven of the latter. This disposition to suppuration in the non-puerperal cases is

[a] Vide No. 43, August, 1856.

an important practical point, and amply borne out by the facts brought forward by the author. His remarks upon the question of puncturing the tumour after the formation of matter has become known are sound and rational. He writes:—

"I believe that, as a general rule, it is safer to leave the emptying of the abscess entirely to nature, rather than to attempt the evacuation of its contents by puncture; those cases always excepted in which the inflammation has attacked the cellular tissue external to the peritoneum, and when the abscess consequently points in the abdominal wall. In those cases the very tardy advance of the matter towards the surface may sometimes be accelerated by the application of a blister; for even here it is not expedient to make an incision so long as any considerable thickness of parts intervenes. In the far more frequent instances in which the seat of the mischief is within the pelvic cavity, the pus tends to escape *per vaginnm* or *per rectum*, and the attempt to anticipate by puncture the exact course which it may take is very frequently unsuccessful, and not always safe. The natural relation of parts is much changed by the effects of the inflammation; the swelling and tension of the vaginal walls extend far beyond the limits which circumscribe any actual collection of matter; and it is very likely that the trocar may be merely thrust through hardened textures, and, though passing very near to the collection of matter, may entirely fail to enter it. The extent and relations of the tumour can be most accurately determined, and puncture can consequently be most safely performed, when the cellular tissue between the vagina and rectum has been the seat of the inflammation; and a Pouteau's trocar introduced by the vagina will generally reach the matter, if the indications of its presence have been distinct. In one case, where inflammation of the cellular tissue between the uterus and bladder had issued in suppuration, the escape of ten ounces of pus on puncture being made, proved the expediency of the interference. In a few days, however, the vaginal tumour had re-acquired its former size; the puncture was repeated, but no pus followed, for the trocar had at once entered the bladder through the firm and œdematous vaginal wall; an accident which fortunately was not followed by any bad consequences."

Recent observations have shown that effusions of blood may take place in the neighbourhood of the uterus, in the non-gravid state, giving rise to symptoms of a very alarming kind, and occasioning the formation of a tumour in this situation. For this disease the name of *uterine, retro-uterine*, or *peri-uterine hematocele* has been proposed. The blood may be extravasated into the cellular tissue surrounding the inferior portion of the womb, or into the peritoneal cavity itself, in which case the blood lodges in the *cul-de-sac* between the uterus and the

rectum. Of this rare and obscure disease Dr. West has met with but four examples. He has collected, however, the general results of forty-one instances of uterine hematocele, including his own cases. *Thirty-three* of these terminated in recovery, and eight in death. The apparent causes of death in these eight cases were as follows:—In *four*, peritonitis; in *two*, hemorrhage; in *one*, phthisis; and in *one*, pyœmia. Our information respecting this disease, is, as yet, very deficient in many points: nevertheless, Dr. West's account of it, founded upon the histories of the above 41 cases, is clear and satisfactory.

The twenty-third and six following Lectures are occupied with the consideration of the diseases of the ovaries. Upon each of the subjects included under this head, he gives the fullest and latest information. We cannot at present follow him through the details. One point, however, cannot pass unnoticed, and that is the question of ovariotomy. A great deal has been said and written about this operation of late years, and it has gained many admirers and strenuous advocates on the other side of the channel. There seems to prevail a great mania for desperate operations amongst a certain class of English surgeons of the present day, and there has been quite a run upon excision of enlarged ovaries. Now we have always derived satisfaction from the reflection that in this metropolis ovariotomy has had no supporters. Irish surgeons have looked upon it rather with disapproval, and it has found no favour here. It has now been a good many years under trial both in England and elsewhere, and what is the result? What, we ask, is the real value of this procedure? There has been, one would think, sufficient time and experience to test its merits. But we shall let Dr. West answer these questions: no one is more competent to arrive at a just and impartial solution of them.

"From this wearisome collection of details, imperfect, sometimes conflicting, what inference may we draw with reference to the operation of ovariotomy? or is, perhaps, no conclusion at present possible, and must the decision of the whole question be adjourned to a future time, and to our possession of better information? Some points, indeed, must be left unsettled, but still there appears to me to be ground sufficient for some conclusion, and that, I fear, must be unfavourable to the performance of ovariotomy. . . . . These three reasons, the high mortality, which experience and dexterity have failed to lessen; the special hazard attendant on those cases where yet the operation is specially indicated, and the utter uncertainty in which we find ourselves, even in the most favourable cases, as to its probable result, have chiefly influenced me in the

formation of my opinion as to the general inexpediency of performing ovariotomy."

Such, then, are the conclusions at which this author arrives, after a calm, full, and deliberate survey of the results which have hitherto attended this capital operation. It is not to be questioned but that no one was better qualified to institute such an investigation. Possessing extensive information, great industry, and a well-disciplined judgment, Dr. West is peculiarly fitted to conduct this inquiry in the manner most calculated to educe the truth. We doubt not that the opinion at which he has arrived will have its due weight with the profession at large, and will have the effect of materially lessening the number of victims to this operation. It must be observed, however, that Dr. West does not interdict its employment altogether: he thinks that, "till we are in a position to lay down the indications justifying ovariotomy," and can "venture on any reliable grounds to express a prognosis as to the issue of our interference," the operation "seems to take its place by the side of those exceptional proceedings, the expediency of which must be determined by each one for himself, after a careful consideration of the peculiarities of the case, and the idiosyncrasies of the patient."

The author has given a chapter on a subject not usually discussed by writers upon the diseases of females, viz.:—"Diseases of the female bladder." We cannot regard it as an important addition to the category. Cystitis, in its acute, sub-acute, and chronic forms, is described, and the treatment pointed out. Irritability of the bladder occurring as a functional disease receives no separate notice, and yet in our experience it is much more frequently met with than is cystitis, and a most troublesome, refractory complaint it is. The use of carbonic acid gas as a local sedative in cases where this symptom is prominent, is nowhere mentioned: which omission rather surprises us, as this remedy has attracted a large share of attention for the last two or three years, and a great deal has been written upon it in the medical journals. Whilst speaking of this agent, we would mention that not the least important of its uses is in carcinoma uteri, where its application oftentimes exercises a more anodyne influence than strong opiates, and without giving rise to any of the disagreeable effects attending upon the administration of opium.

The concluding two chapters of the book relate to diseases of the urethra, vagina, and external organs of generation. Although some of the rarer and less commonly noticed forms of

disease are here described, together with those ordinarily recognised, still there are others which are passed over without receiving that share of attention which they deserve, or which might have been expected at the hands of so comprehensive a writer as Dr. West. For these and some omissions observable in other places, we cannot pass any censure on the author; he has prepared us for them, and candidly confessed to them. In the advertisement to this second part of the work he says:—

"Many subjects, indeed, that deserve a longer notice are touched on here but slightly; and others, of a purely surgical nature, are completely passed over, for I have not ventured to teach concerning matters with reference to which I feel myself to be still altogether a learner; while I have always regarded mere compilation, uncontrolled by large experience, as more apt to perpetuate error than to diffuse truth."

How true is this last sentence! It would, indeed, be well for medical science if its cultivators were more influenced by the principle which it enunciates. And yet, what is more common in medical writings than this sort of "mere compilation." A practitioner meets with an instance of some rare disease, or has an unusually fortunate case of medical or surgical practice, and forthwith he becomes an author. To give importance, not to say bulk, to his production, be it "contribution," pamphlet, or book, he lays before his readers all that has been hitherto written on the subject in hand, without correction of any kind, or with such critical remarks as his scanty experience suggests. Such a course as this is but too common in our day; and yet, we repeat, is it not far "more apt to perpetuate error than to diffuse truth"?

For the treatment of that painful disease, vascular tumour of the urethra, Dr. West employs excision, followed by the application of the actual cautery. Instead of this latter application, we have used nitrate of silver, and found it to answer sufficiently well. There are some cases to which excision is inapplicable, in consequence of the tumour growing from a large base: here we must trust to the actual cautery alone, or to the nitrate of silver, or to nitric acid. In one obstinate case this last was most efficacious, but it caused very acute pain, which the patient represented as far more intense than that produced by the lunar caustic, yet, at the same time, subsiding much sooner.

We must now conclude this brief notice. It is, we admit, very short, considering the importance and excellence of the book, and the deservedly high reputation of its author; but for

this we need hardly offer any apology, having given a lengthened review of the former part of the work, and all the praise bestowed upon it can with equal justice be pronounced on the part now before us. As a sound practical treatise, based on the extended experience of a close and accurate observer, whose views and acquirements are quite *au niveau* with the present state of medico-obstetrical science, this work is fairly entitled to the highest rank; and, as such, we strongly and heartily commend it to the attention of our professional brethren.

The British Army in India, its Preservation by an appropriate Clothing, Housing, Locating, Recreative Employment, &c., &c. By Julius Jeffreys, F. R. S., formerly Staff-Surgeon of Cawnpore, and Civil Surgeon of Futtehgurh. London, Longman and Co. 1858. 8vo, pp. 393.

One of the most important questions of the present day is how to retain India to the British Crown so that it may be a source of revenue, and not a tax upon the nation. This problem will require consideration directed to two distinct objects. Firstly, we have the retention or continuance in possession of the country; and secondly, the holding of it without (at all events) a pecuniary loss, if not an actual profit

We are now, to the surprise of the world, and almost even of ourselves, again masters of the whole Continent, and we control a mass of people numerous in proportion to ourselves as ears of corn to the oak which stands in the centre of the field in which it grows. We have, however, this difference inour simile, that whereas the oak retains its hold of the ground by means of its own tendrils and its own roots, we have been dependent for our reduction of the revolt, and retention of our position in the country, upon foreign aid. Unassisted by the Sikhs, the Ghoorkas, the Nepaulese, and some of the people of the plains, we could not, when the mutiny broke out, have continued even in the semblance of possession, and the very assistance rendered to us then has had the effect of implanting into the minds of these people a feeling of confidence in themselves, amounting almost to this, namely, that when they choose, the British *Raj* shall cease. Personal communication with officers of both services (Queen's and Company's), men long and well acquainted with the native character, have made us aware of the truth of this assertion, and of the utter importance of neutralizing this feeling as speedily as possible. There is but

one means of bringing about this end, and that is, the retention in India of such a body of European troops as shall be capable of overawing our late worthy allies, and demonstrating to them the utter inutility of any attempt on their parts at *emeuté*. Granted, then, that this be (as it confessedly is) the sole, the only, mode of securing our ascendancy in India, and remaining undisputed masters of it, surely the question that first arises in connexion with it will be the means by which this force can be permanently maintained in full efficiency. It is of no use to have an army on paper amounting to such and such a strength; the force hereafter to be kept must be over and above all casualties,—men capable of being at any moment brought into the field, and kept there at any period of the year. To enable the European constitution to withstand the evil influences inseparable from the climate is the object aimed at by Dr. Jeffreys, and the subjects which he has chosen as best calculated to meet this end refer to the clothing, housing, locating, recreation, and useful employment of the troops.

Preliminary to entering upon the consideration of these different objects, Dr. Jeffreys introduces to the reader some very valuable (and valuable because practical) observations upon tropical virulence and effects of exposure to the sun. He treats of the "action of the sun on the head and system generally;" and the action of the sun's "rays in inducing disease;" as well as the real causes of diminished "illness in regiments after some residence in India."

In reference to the dress of the soldiers, the author observes:—

"The subject DRESS, has been given a primary position, not from its possessing a superior importance to the HOUSING and OCCUPATION of the soldier, for, on the return of tranquillity, these will assume greater dimensions, but because he is now in the field, and in danger of dying there before the question of rightly housing and employing him can have a practical solution."

"To guard against any prejudgment of the dress proposed, it may be well, without anticipating the subject, to invite the reader's attention to a few points here. In the first place, in the dimensions adopted in the several forms of helmets, it was felt to be necessary that some standard should be selected. It might be a maximum, a medium, or a minimum. Upon consideration, the first has been chosen, the primary point being adequate protection. The several parts, divisions, and materials, and their respective *proportions* having been decided, as nearly as was possible beforehand, the dimensions may be reduced to such an extent as may be deemed necessary for the efficiency of the soldier. In the case of cavalry, with their

quick movements through the air, and against wind, it may be requisite to squeeze down the dimensions of the head-dress more than were to be desired for security; but it would be indeed a folly to let the mind be so carried away by partial and commonplace views as to rush into the extreme of scantiness, and to ruin the constitutions of a whole corps in a season or two, from an overstrained desire not to incumber them."

"The Head-dress to be effective should possess such resisting power as to ward off entirely the whole rays of the sun throughout an exposure to its action of any duration; and not only from the skull, but also from the sides of the head, face, and neck. It ought also to transmit so copious a ventilation over the head as to encourage the perspiration to evaporate freely from it; and yet with a provision by which in cold weather the circulation of the air could be, at once, reduced or cut off. At the same time, such a head-dress should be no more cumbrous than was necessary to fulfil all those conditions completely.

"It is here proper to remark that while all unnecessary weight and bulk should, as a matter of course, be avoided, to object to that which was really necessary for his complete protection, would be not a whit more reasonable than to complain of the size and weight of the soldier's rifle and ammunition, and to substitute for them an air-gun and its pellets, which would better defend him against his human enemy than does his present head-dress against his solar. It may at once be affirmed with confidence that the soldier will be abundantly repaid the trouble of carrying every inch and ounce of helmet which is necessary for a total repulsion of the sun and prevention of its dire and complicated effects. We may in England, in the effeminacy of luxurious life, foster sensitiveness to weight and consult levity in our hats until 'the grasshopper will be a burden' should it settle upon them, but in the Tropics the *weight* of the sun's rays is such that even the effeminate would be thankful to bear any weight of defensive matter on their heads in lieu of that crushing sense of weight which knocks the strongest down at last. Well would it be worth while to reduce, if needful, his accoutrements by a pound or more, and add it if required to his head-dress. In fact, the head readily acquires the habit of carrying with ease ten or twenty times that necessary weight. Not to mention our maiden carriers at home of fruit and fish, and Welch butter-women balancing their firkin to market on their heads, walking, knitting, and singing as they go, we find in India itself the head to be the chief seat of carriage; *kuhars* (bearers) only employing the shoulders. The coolie trotting many miles with his five to eight stone of grain, the milk and well girls with their spherical foot or even eighteen inches of liquid, and women and children with their '*cowrie khapes*' of mud *running eight hours a day* and rearing the most formidable of fortresses, prove that by choice the head is selected for carrying loads, and for great distances rivals the back and shoulders. With

these facts before our minds we must perceive how wanting in judgment it would be to object to any addition of weight *necessary* for an effective head-dress.

This may seem a long quotation to give upon a single article of attire, but that one article is the most important of all the soldier's kit; let the head suffer from the effects of the sun, and immediate or remote consequences will assuredly ensue. Whilst we write these words, our vertex is even appreciating the influence of heat thrown down upon it from the gas-burner of the room in which we sit, bringing to our recollection the crushing load of solar rays which mercilessly used to bear upon us on the march, and unrelentingly pierce the canvass covering of our tent. None but those who have experienced the same can tell the overpowering sensation of weight which accompanies the sun's rays in India during four-fifths of the entire year, and any reasonable amount of burden on the head, in the shape of helmet, turban, or solar toupee, would be gladly borne in preference to these. As yet there is no form of military head-dress in use that will protect the soldiers from the sun, and that now proposed by Dr. Jeffreys, even if it fail in practice, should be tried; because in theory it is sound. We are utilitarians, and look to accomplishment of the end in view without caring in the least as to the appearance of the article that promotes our object; and if (as Dr. Jeffreys seems to think), the cumbersomeness of the look of the helmet should be the means of preventing its adoption, we shall not be satisfied. Opportunities enough will offer themselves yet, before the campaign in India is closed, for the new head-dress to be fairly tried, and we consider it a moral duty on the part of the authorities, after the sad experience they have had of deaths from sunstroke, to supply these helmets freely to the troops, and so test their merits in the only way they really can be tried. Dr. Jeffreys writes on this point in perfect fairness, for he says:—

"It is not necessary either to wait for a comparative trial made in India, or to adopt any plans untried. It would be easy to produce an artificial solar effect, which, so far as the various non-transparent *media* we have to do with are connected, would be abundantly parallel to the radiation of heat from the sun itself. By means of two planished tin or other metallic mirrors, the rays of a large open fire might be reflected upwards towards the ceiling of the room, and thence downwards, with varying degrees of obliquity. These rays may, for a *crucial* trial, be given a power threefold that of any solar rays, at the distance of our earth from the mystic luminary. Under the influence of these rays, two men may be placed

side by side, so as to be subjected to them equally. One of them may be clad in the usual way, his shako or cap encased in the cotton covering supplied to the troops in India; and the other may be dressed in the manner proposed. It will soon appear which of them is the first driven away from his post, and how many times longer the other is able to remain in his without inconvenience. The men may then be dressed, in succession, in the different kinds of helmets and tunics proposed in the preceding pages, to decide which of the several descriptions is most effective and otherwise comfortable. It is probable, that unless a fire of unusual dimensions were employed, it would be difficult to displace either of them. Presuming that any such result were obtained, it would surely be unnecessary to send such armour to India to be tested! The trial might be made at once, for it is my belief that a man caparisoned in the manner proposed might, according to which of the dresses was adopted, be enabled to sit out from five to eight men in succession in the ordinary dress of the soldier; and that, if our troops in India were clad in solar armour of this description, strokes of the sun would become of very rare occurrence, while the great accession given to epidemics through its action would cease. The simple heat of the atmosphere might then remain almost the only source of inconvenience from exposure during the day—an inconvenience not trifling indeed, nor to be lightly incurred, but of small account when compared with the assaults of the sun."

Dr. Jeffreys does not confine his views solely to the consideration of the helmet, or covering for the head, but gives his ideas and experience upon the form of clothing that is best adapted for the body generally for outer and for inner wear. We have, however, laid before our readers so much of the author's words on this subject, that we must refer those interested to the book itself, and proceed to the next division of the work, namely, that on the "Housing of British Troops in India."

Dr. Jeffreys first attacks the present system of lodging soldiers in bungalows or ground-flour buildings, and shows the advantage that will accrue from locating them on upper floors, and in houses properly constructed with double-roof ventilation; and next proceeds to show the manner in which this may be practically carried out. He says in reference to the housing of British troops in India:—

"Upon this very important question the Company's government has been in nowise wanting in solicitous care. But as no small number of the barracks throughout Hindostan have been destroyed by the rebels, and a large increase of accommodation will be needed for the future, the present is the moment for taking into consideration any modification in their reconstruction, since they would be attended with a double cost if made hereafter.

"To be as brief as possible. Many reasons may be adduced against the lodgment of European soldiers on a ground floor; which was universal when I was in India, and I believe is so still, and many and great advantages demonstrated in favour of an upper-floor housing of them. In the first place, every person who has studied the habitudes of malaria well knows how exceedingly more rife it is, especially the malaria generating the fevers of India, near the surface of the ground. The *natives*, though as such they ought to be more exempt, are much more prone to attacks of fever, owing to their sleeping close to the ground, than the Europeans who lie at a somewhat higher level, even where both are equally under shelter. Other causes, no doubt, are also in operation, but this is a main one. In some countries the inhabitants sleeping on an upper floor are almost exempt from the effects of malaria which is decimating ground-sleepers. The wealthier inhabitants of Calcutta live entirely on the upper floors of their houses. Moreover, the glare from the ground, and from the walls enclosing premises which are not spacious, aggravates the heat of a ground floor materially, and renders it painful to keep venetians open, and to look out even towards the shady side of a house; and the look-out upon an ever-present and glaring mud wall, often enclosing a barrack-ground, is but a dull and dispiriting sight for the soldier. Yet, near a town, with his present habits, he cannot with safety be trusted in unenclosed barracks. Again, wind, which is so much longed for, and so necessary during the hotter seasons, meets with many impediments near the ground which do not exist ten or twenty feet up. A refreshing breeze may often be felt at an upstairs window when a dead calm prevails below. Moreover, if quartered upstairs, the soldier could not be constantly truanting into the sun and glare of the barrack-yard, nor would he feel tempted to do so when he had spacious upstairs verandahs to walk and lounge in, with an open and cheerful view over the cantonments.

"Above his head he ought by all means to have a double roof,—the outer may be a high-pitched one of grass, such as is usual, and the inner a roof parallel to it at a distance of a yard, or it might be, though not so well, a ceiling of mats simply overlaid with grass or straw, and suspended from the rafters and tie-beams of the outer roof. Between them a free way should be given for a current of air to pass horizontally when pressed by wind, or vertically, through chimneys in the upper roof, when relying on its own buoyancy for motion. This current is needed as an ever-watchful *convector* of the heat, which *will* steal its way in treacherous quantity through every single roof, and, if not thus carried away by convection, come radiated down by the willing roof (the material of which is so adept a radiator) to mar the coolness below. The same amount of material that is often put into the present roof would suffice for both, though more ought to be allowed, and would prove doubly effective.

"The importance of a double roof is shown in the fact that a ground floor where there is an upper floor above it, is in general

much the cooler of the two, although there are causes, already referred to, which render it, when it has only a single roof above it, much hotter than an upper floor with a similar roof. To secure the best effect, the heat and stagnation of the atmosphere on the ground-level should be avoided by residing on a well-raised first floor; and the solar heat from above should be arrested by two roofs well apart, as described above, and by an upward current of ventilation through openings in the ceilings and roofs at all times when the set from below can be commanded, as will be described presently."

He next describes the modes of ventilating barracks for the soldiery, and introduces one which we doubt not is new to the majority of our readers. It is the *Subterranean absorption of Heat*, of which he says, that rightly employed, it can be made available with great advantage for the ventilation of buildings. He observes that:—

"While we are wont to look to the soil of the uppermost few inches only of the earth's surface, as that in which, for the most part, we have any interest; while, if we dig deeper into it, we do so only for water or for minerals; we are prone to overlook altogether, or to employ in an unreflecting and defective manner its capabilities as an equalizer of climatic temperaments. *Equatorial* climates are, for the most part, equable more than enough;—hot at all times. But near to and beyond the Tropics, and therefore over nearly all India, we may view the uppermost fifty feet of the surface of that continent,—or as many feet down as we can reach without the intrusion of water,—as one vast equalizing reservoir; ready to absorb, from any amount of air we may choose to subject to its action, a large proportion of its summer heat, even if we do not aid our reservoir in its annual emptying itself of such heat in the cold season, but leave it to conduct back, spontaneously, such heat tardily upwards to the surface during the winter months. But if we adopt proper measures for cooling thoroughly, in the winter, the mass of earth we select for our absorbing reservoir, we may have it emptied of more than the accumulated summer heat before the ensuing hot season, and brought down nearly to the *winter mean*, and ready, therefore, to absorb again much more heat than when it had to cool itself by the tardy spontaneous process of upward conduction through its whole mass.

"Furthermore, since it is by the agency of the *cold* air of the winter that we must empty our reservoir of heat, that air will become warmed by the process, and available for a tempered ventilation throughout the very season when the air is more sharp than is suitable to bodily frames more or less relaxed, and at rest; especially during sleep.

"In looking around for means by which to command such valuable results, we find them offered to us at once, if we will but exer-

cise a little thought, in the facility and cheapness with which wells are made throughout India. In the whole of the western provinces, and I believe, throughout *Hindostan* generally, wells about three feet six inches in diameter may be dug down to the water level at a cost of from eighteen pence to half-a-crown, where the depth does not exceed fifty feet. In most soils these wells are available without being guarded by any masonry lining, excepting under the water level, for the drawing of water throughout the whole day for many months, during several years. And in soils even to a considerable extent sandy, they can be dug, and will last as they are, *if not used*, for a great length of time.

"Now if we select, contiguous to a barrack of the largest size, a plot of ground only a hundred yards square, or a hundred and twenty yards long by eighty yards wide, less might do, and prick it over with wells about seven yards apart, the cost of digging them all will be only twenty pounds, and we shall possess two hundred to operate upon a cubic block of earth a hundred yards square, and say fifty feet deep. There are numerous parts of India, in which the water being forty or fifty feet or more from the surface, dry wells to that depth may be dug; but on the other hand, in many localities, as at Meerut, Bareilly, and Delhi, the depth is much less, in some not one-half as much. In such places the number of the wells would have to be multiplied; and evaporation from the water's surface and the humid sides of the wells would make up for the effect of their inferior depth. Upon the plan proving effective, it might form an important object in the choice of a station, to select localities in which the refrigerative well ventilation could be given the best effect—whether with deep wells and a drier air, or of shallow and a more humid. At Futtehgurh, Cawnpore, Agra, and in Bundelcund, &c., dry wells from forty to seventy feet deep may be dug.

"To put the wells in action we may proceed thus: dig successive rows of wells; the first of each row being sunk in the lower verandah of the barrack, throughout its length, though this is not necessary, and the mouths of this row being covered with wooden or bamboo gratings to guard against accidents. All the wells exterior to the building, excepting the furthermost of each row, must have their mouths closed and plugged for some feet down by straw resting on a simple bamboo frame propped across the well. If the ground is wanting for exercising the men, the mouths of the wells must be arched over with brick-work, and covered level with the ground around; but as this would be expensive, and the ground on one side of a barrack can generally be spared to that moderate extent, the simplest course would be to raise a common mud wall a foot or two high round each well, and to cover the straw, plugging its mouth with matting or a thin thatch. The earth dug from the wells would raise the level of the surface about a foot, and would in general yield, if the lower sand were not put uppermost, a fertile virgin soil. The whole area between the wells might form a productive garden, with its surface kept cool by frequent watering from a few wells

reserved and deepened for the purpose, and by being covered with vegetation; but it must not be such vegetation as could be a source of malaria. This use of the surface would appreciably check the travelling of heat downwards into our cubic reservoir below.

"The wells of each row must be made to communicate with each other, thus: from the bottom of one well, a horizontal passage about two and a-half feet high and fifteen or eighteen inches wide, must be cut to the bottom of the next well of the row, and from near the top of this well, below the straw, about ten feet beneath the surface of the earth, a similar horizontal passage must proceed to the next well, and from the bottom of this well a passage, and so on to the last well, according to the number of wells in the row. This last well being surmounted by a large cowl (turned to the wind by a fan-tail, or a lever moved by hand), and acting as wind-sail, the wind will blow down it and through the passage at bottom to the next well, then up it and through its upper passage to the third well, and pursuing this course through all the wells, will make its exit through the grating of the well, and into the verandah, which should be well enclosed. As in each row of wells the last would be similarly surmounted with a cowl, every first well of each row would pour forth air into the verandah.

"Supposing the barracks to be built with an upper floor for the residence of the men, the verandah above that in which the wells are may have its floors grated throughout, being laid with battens say one inch and a quarter wide, and three quarters of an inch apart. This should be an enclosed verandah, of course.

"We shall now have an abundant ventilation of cooled air in the hot season, and of warmed air in the cold, at all times when there is any wind. In a calm state of the atmosphere the ventilation may be easily maintained by mechanical aid; the moderate amount of labour required for which may be readily afforded when the army of *bheesties* and *coolies*, and bullocks, otherwise needed for tatties, is, with them, superseded by our subterranean refrigeration. The machinery by which an *artificial* current may with best effect be maintained will receive some notice presently.

"Of the capability of such a heat-absorbing and heat-exhaling reservoir as the block of earth with its cavernous surfaces would form, we may obtain some conception by a little calculation. First, as to the whole earthy surface holding a commerce in caloric with the air sweeping against it down and up the wells and through the transverse passages. Each well, where there are forty perpendicular feet available, and ten peripheral, will possess a surface of four hundred square feet, to which must be added one hundred feet more as the surface of one-half of the two transverse passages connecting it with the next wells. The acting surfaces of each well may then be taken at five hundred square feet; and of the two hundred wells at no less than one hundred thousand feet; which immense surface would be constantly acting upon the ventilating currents. These, while traversing it, being repeatedly inverted and changed in their

direction, could not fail to have every part of them brought into contact with the earthy surface. With respect to the capacity, as a reservoir for heat, of our block of earth of one hundred *yards* square and fifty *feet* deep, forty of which may be assumed available, it will be found on calculation to contain, deducting the wells' space, no less than three million six hundred thousand cubic feet, weighing about five hundred and fifty million pounds. Estimating the *specific* heat of earth and of air as about the same, supposing the surfaces of the wells to be at the commencement of the hot season at the temperature of sixty degrees, one hundred millions of pounds of hot air might pass through them during the ensuing hot months, and be cooled down thirty degrees, without raising the temperature of the mass of earth six degrees, by the time the cooling process ceased to be needed at the close of the warm months. Any warming of the mass by heat that struck down from the surface of the soil would, of course, be separate, but not such as to affect materially the calculation; since, if the quantity to be cooled were doubled, the earthy mass would only be heated by twelve degrees.

"Supposing the cooling to be employed about two hundred days, or about seven months, this would allow no less than half a million pounds of ventilating air daily, or upwards of twenty thousand pounds of air per hour, day and night. In bulk this would amount to more than two hundred and fifty thousand cubic feet; which would renew every hour the entire atmosphere of a barrack two hundred and forty feet long, sixty feet wide, and about twenty feet of *mean* height. Such a ventilation would be redundant, and could only take place in strong winds, since it would require a current of air through the wells of six miles per hour, and through their connecting passages of twenty. Of course the surfaces of the outermost wells first entered by the hot air would soon lose much of their coolness; but then the nearer wells would have theirs less reduced in proportion.

"In the cold season, during the warmth of the day, the action of the wells would not be needed, the barrack doors being thrown open. At such times the warmish current should not be allowed to blow through the wells, as it would stop the progressive cooling of their surfaces. To prevent this, the cowls should be turned with their backs to the wind, and perhaps a mat laid over each of the outer wells. At night probably not a fourth of the wells might be needed for the temperate ventilation they supplied, in lieu of the sharp night-air of the cold season; but while the air was cold, *i. e.* from soon after sunset till an hour after sunrise, the wind should be allowed to blow through all the wells, the rows not in use being made to blow their current out of doors. The air of the wells being the warmer of the two, the ventilation would proceed almost spontaneously. By such management, especially if mechanical aid were employed when the weather was calm, the terrene mass surrounding the wells would be brought down to a temperature much below the *mean* annual temperature of the climate, which annual mean would

be the utmost cooling to which even its deepest stratum could be reduced if the process were left to the natural action of conduction upwards through the whole mass."

Now, here again, we would say, let the plan be tried; Dr. Jeffreys may be wrong, and, if so, the money spent upon the experiment would have been thrown away; but, if he is right, what then?—why a very great end and object have been gained. For ourselves, we shall only observe, that in the rainy season we should expect these wells to become filled with water (either by percolation or direct entrance from above), and their action rendered nugatory; whilst, as reservoirs of standing water charged more or less with vegetable matter from the decomposing straw that forms the covering of their mouths, they might be productive of malaria.

From this, which we may term the major apparatus, we are led by Dr. Jeffreys to the consideration of minor plans of ventilation by machinery worked by horse or other power. Three such are introduced, viz., Dessaguiller's blowing machine, introduced first by Dr. Dessaguiller more than a hundred years ago, to ventilate the House of Commons, in which the air is propelled by passing off at a tangent through a centrifugal force imparted to it by rotation, by means of fans revolving in a barrel; next, the refrigerator contrived by our author, a kind of pendulum pump, formed of a frame eight feet square, hanging upon knife-edge hinges, between and close to parallel walls of masonry or wood, and oscillating between them. The frame on one side is laced with tape, over which surface are stretched across from top to bottom lappets of fine cotton cloth, overlaying each other like venetians. When this pendulum frame, which is well weighted at the bottom, is drawn back, the lappets flow up, and the air passes between them. When the pendulum oscillates forward, the lappets fall close, and the whole volume of air in the machine is driven through valve doors in the front, nicely poised, and opening readily to the pressure.

"The peculiarities of this air-pump are:—1st. The entire absence of friction in the piston, it being a pendulous frame hung on knife-edge hinges, and not touching the sides of its chamber. 2nd. Its requiring the force to act in one direction only; being a pendulum and weighted, it oscillates freely to nearly the same height as that to which it has been drawn. 3rd. The capacious free-way for the air, the whole surface of the frame being valvular, and the formation of the valves light and nearly air-tight, if close wove cloth is used, or oil silk."

And lastly, the thermantidote, as introduced into Bengal by Dr. Rankin, or modified according to the suggestions of Mr. Watson, for the particular description of which we must refer to Dr. Jeffreys' book.

Upon the employment of the thermantidote, he judiciously observes that—

"It should be borne in mind that when employed for ventilation the centrifugal machine should not act as a *blowing*, but as a ventilating instrument. Under no circumstances can any one sit prudently throughout the day in an *unintermitting* current blowing against one side of his person; especially if the temperature of that current is lower than of the air around him. A fan, or punkah, blows air alternately against the opposite sides of the person, and each puff is transient, and followed by an equal lull, during which the skin has time to prepare itself for the next impression. Hence most persons may safely sleep under punkahs oscillating over them all night; but, though often practised, it is with questionable prudence that persons sleep in an *uninterrupted* current of wind."

We cannot too forcibly impress this truth upon all.

Every section of this work will well repay the reader; but our own limits prevent us from noting more than one other, viz., "The Locating of British Troops in India." The results of the recent rebellion have proved to demonstration that small bodies of Europeans, placed under any good cover and behind a rampart, fairly provisioned, can hold out for any reasonable period against vast bodies of natives. For the future, therefore, it is clear that by far the larger proportion of the European troops can be stationed with safety on hill eminences, and the choicest climates for the residences of Europeans are to be found in the hill districts of each of the Presidencies, at elevations of from five to six thousand feet above the sea. All, then, that is required is to erect fortifications for small British forces, suitably placed, and constructed with a view to good permanent residence during peace, and with capability for resistance. Future outbreaks among the natives may then be set at defiance, for the efforts of any number may be frustrated until relief shall arrive from the hills. Dr. Jeffreys does not merely make suggestions, but with his suggestions he couples plain and practical recommendations as to the way in which the same are to be carried out:—

"Now, if common mud walls, reared similarly to the ramparts themselves, and of massive thickness, were run inwards from them as spurs parallel to each other, at a distance of twenty feet or upwards apart, and then connected by massive arches of burnt or even

of unburnt brick, they would afford over them an extensive surface, which, being made level, might form the floor of barracks on a level with the rampart or wall of the fort. Were properly solid barracks of unburnt brick, solid against the climate, but left to their fate in a siege from their exposed position, erected on that base, and given a double roof and the various other provisions for ventilation and cooling already described, there would seem to be no assignable reason why so well-raised and airy a habitation might not be as healthy as if it were without, instead of within the defences. If an open plain were preserved for a mile around, in a state of wholesome cultivation, the main bazaar which grows up round large stations being kept beyond that distance; if only barrack and domestic servants were allowed to reside within the fort, the various shopkeepers and labourers coming in for the day to their stores and occupations; and if proper measures were taken to guard against offensive matter accumulating in or near the fort, there would be good reason for expecting that it would offer a far more healthy residence for troops than most of such cantonments as I have known in India.

"The spacious arches below the barracks might serve various important purposes. In the ordinary times of peace, some of them might be reserved for use as military storehouses, others for granaries; the 'bunniahs' who supplied the forces being required to keep their grain stores in them. These corn-dealers have the neighbouring 'Zumeendars' commonly in their debt for advances, and get possession of their grain, which they bury in '*khuttees*,' large pits dug in the earth ten or twenty feet deep and lined with straw and chaff. The corn is often seized, reaped, and stored before it is fully dry, and is then not easily brought up from the pits to be turned and aired as often as it ought. Moreover, as these pits are commonly in the open air, though they are dug in the form of a dome, with small mouths like a kiln, which are closed up with earth, there can be no doubt that damp must often get into them."

With this practical remark, we take our leave of Dr. Jeffreys' book. It is a very valuable work, particularly at the present time. The only fault we find with our author is, his being a little too verbose. It is a great mistake to overload a book with words and sentences which take up the reader's time, and take away from the force of the argument *pro* or *con*. The class of men by whom it is desirable that Dr. Jeffreys' book should be read are statesmen and others who have little enough time at their disposal. It is, therefore, we repeat, a mistake to have the subject-matter of the work interspersed with sentences such as this:—

"The region of taste too much resembles Milton's bog for one who is simply depasturing in the fields of science to venture upon

it. Fashion's horoscope, revealing mysteries too deep for human reason, has pronounced it to be good taste, *for the current hour*, that the cover for ladies and soldiers' heads should not be a cover at all, but one-half or one-third of a cover. If we must bow to this her inscrutable arbitrament, we may surely complain at her inconsistency in not extending the rule to our furniture, where it would be comparatively harmless. Why may not the man who would dwell consistently, having feasted his eyes on the semi-bonneted head of his wife, cut away one half of the cover of his table, of his sofa, and of his chairs, and leave his furniture in strict accordance with her head, both as to elegance and protection?"

However, we hope to see Dr. Jeffrey's book soon reach a second edition, for it is one which should be read by all in any way interested in or connected with British India.

Practical Midwifery: comprising an Account of 13,748 *Deliveries which occurred in the Dublin Lying-in Hospital, during a period of seven years, commencing November*, 1847. By EDWARD B. SINCLAIR, A.B., F.K. & Q.C.P., &c., &c., Ex-Assistant Physician to the Dublin Lying-in Hospital; and GEORGE JOHNSTON, M.D., L.K. & Q.C.P., &c., &c., Ex-Assistant Physician to the Dublin Lying-in Hospital. Dublin: M'Glashan & Gill. 1858. 8vo, pp. 574.

WE have very recently laid before our readers, in a communication from the able pen of the present Master of the Dublin Lying-in Hospital, a sketch of the rise of the Dublin School of Midwifery. The Report of Drs. Johnston and Sinclair, which we have now to bring under notice, will serve to show the tendency and character of the teaching afforded in this School at the present day. We have no fear but that those who examine this treatise will pronounce it well fitted, not only to maintain, but advance further, the high reputation already achieved by the Dublin School. The objects aimed at in the reviewing department of this Journal are various: it is sometimes necessary to deal, with no unsparing hand, with erroneous theories, unsound arguments, facts incorrectly observed, and, alas! sometimes even with false statements, and dishonest quotations. To the reviewer, the discharge of such duty is very painful, and if it were not for meeting, happily more frequently, with the productions of earnest cultivators of medical science, works for the most part defying criticism, and reducing his task to the simple one of indicating the kind of information that they offer to their readers,—the office of reviewer would be one to

be anxiously avoided. On the present occasion our duties are of this latter kind: we have merely to draw the attention of our readers to the important facts in this most valuable Report, collected, arranged, tabulated, and compared, with an amount of labour that must excite the wonder and admiration of all who contemplate it, but which can only be fully appreciated by those who have, like ourselves, attempted (though comparatively on a very small scale) a somewhat similar task.

It is probable that few will read this Report without comparing it with the Reports of the same Institution that have preceded it, and which have contributed so much to the high estimation in which the Dublin School of Midwifery is held. On doing so, important differences in the rules of practice laid down by the several Masters will be observed. We purpose, in pursuing our task, to bring some of these under notice, with a view to comparing the results obtained, and thus we hope to contribute towards the establishment of correct precepts on certain controverted points of practice. It is to the foresight of Dr. Bartholomew Mosse, the founder of the Hospital, that we are indebted for the opportunity of doing this, and it is not the least of the benefits he conferred on science and humanity that we have such an opportunity, which results from the clause inserted in the Royal Charter of the Hospital, limiting the period during which the Master, or principal physician, and assistants, can hold office. It is to two of the Assistant Physicians that we are indebted for this Report of the practice of the Hospital during the seven years it was under the Mastership of Dr. Shekleton. The Report of Drs. M'Clintock and Hardy is for the three years they held the office of Assistant under the Mastership of Dr. Charles Johnson; and Dr. Collins and Dr. Clarke published the Reports of the practice under their own Masterships,—altogether embodying the results of 47,183 cases of labour, thus:—

Dr. Joseph Clarke's Report, . . .	10,387 cases.
Dr. Collins' Report, ...	16,414 ,,
Drs. Hardy and M'Clintock's Report, .	6,634 ,,
Drs. Johnston and Sinclair's Report, .	13,748 ,,

a mass of statistics that will, we hope, be added to by each successive Master; but which, even if it should not, will form a standard for reference, and afford material for thought, so long as midwifery continues to be cultivated as a science.

In an introductory chapter Drs. Sinclair and Johnston supply us with a sketch of the history and internal management of the Hospital: the absence of information on these

points in the former Reports we have frequently regretted, as impairing in some measure the value of the observations recorded, to those especially who might never have had an opportunity of becoming personally acquainted, as pupils or otherwise, with such matters. Our readers are aware that the present Hospital was opened for the reception of patients in 1757, the occasion being celebrated, as a contemporary record has it, "in a most regular, easy, and genteel manner" by a breakfast, at which the Lord Lieutenant and the leading nobility and gentry were present, being entertained during the breakfast by a concert of vocal and instrumental music, and afterwards by an inspection of "fifty-two poor women, great with child, who attended in the hall with proper certificates for admission, all decently clothed in uniform, at the expense of the Hospital, each in a blue calimanco gown and petticoat, shift, handkerchief, cap, and apron, and thus appeared before his Grace, as President of the hospital, the Duchess and the rest of the governors and guardians, with many of the nobility and gentry, who all expressed the highest satisfaction."

It appears that from this period down to the close of the present Report in 1854, 15 physicians have held the office of Master, and 63 have been Assistants. During the first thirty years no record of the pupils was kept, but since 1786, there have been 2875 medical pupils educated in obstetric medicine, and, in addition, 656 women have been taught the nurse-tending of lying-in patients. An analysis of the 2875 gentlemen who have been registered shows that there were 2608 Irish; 220 English; 14 Scotch; 4 from the British Army; 8 from our Colonies; 16 were Americans; 2 Germans; 1 Swiss; and 2 Russians. Thus has the institution founded in our city by the unparalleled exertions and philanthropy of Dr. Bartholomew Mosse—an institution the earliest of its kind in the British dominions, and one still unequalled in the world, except perhaps by the hospitals at Paris and Vienna—afforded to our own countrymen a first-class education in midwifery; and at the same time drawn to our shores students from almost all parts of the civilized world. When we add to this, that the Hospital has afforded an asylum during their time of utmost need to 169,848 poor women, then indeed may we exclaim against the apathy and ingratitude of the nation, to whom even the name of their benefactor is almost completely unknown. Our city is ornamented with statues to kings, generals, statesmen, poets,—the names of Steevens and Dun are connected with the hospitals they founded; but Mosse, who established this most useful of charities; who conferred inestimable benefits on sci-

ence and mankind; who founded an institution which has ever since been a source of honour to our country, and served as a model to the civilized nations of the earth,—is unknown and forgotten. Would that we could awaken our fellow-citizens to a sense of what is due to themselves, and induce them even yet to acknowledge the deep debt of gratitude they owe to the founder of the Dublin Lying-in Hospital! A statue to his memory in the space in front of the Hospital, would be a suitable testimonial, and serve to connect his name with the institution which he raised at the expense of his life and health.

During the period to which the present Report refers, 13,748 women were delivered in the Hospital, giving birth to 13,933 children; of these, 968 were still-born; being at the rate of 6947 in 100,000 births, and of 7401 to 100,000 deliveries. Of the mothers, one-third were primiparous; and 163 died from all causes, puerperal and other, being at the rate of 1185 in 100,000. We have reduced these figures to the uniform standard of 100,000 cases for the convenience of comparison. The seventeenth Annual Report of the Registrar-General for England contains a letter from Dr. Farr, as to the causes of death in 1854, in which it is asserted that the deaths throughout England of women during the puerperal period for the seven years prior to 1854—the same time as that embraced in the Report of our authors—were at the rate of 530 to the 100,000 deliveries; and this low mortality has been adduced as an argument against lying-in hospitals; but any one who knows how the returns of the Registrar-General are made out will be slow to accept as true any conclusion deduced from them. In reference to the deaths of mothers, it will, no doubt, be difficult to convince some, that the great liability to epidemics of puerperal fever may not fairly account for the difference; but when we find it also deduced from these returns, that the proportion of still-born children throughout England is only half of that met with in the Lying-in Hospital, viz., 3580, instead of 7401 in 100,000 deliveries; and remember, that the returns for England are for all classes of society, those who have assistance and those who have not; and that in the hospital, whatever the increased danger from fever may be to the mother, the most anxious care is taken to preserve the life of the offspring, the conclusion is inevitable, that the returns of the Registrar-General are not to be depended on. Of the deaths in the Hospital, 70 arose from puerperal fever, being at the rate of 42,699 in 100,000 deaths, from all causes; or 519 in 100,000 deliveries. In England, it is stated that

the deaths from this cause were at the rate of 31,521 in 100,000 deaths, or 166 in 100,000 deliveries. The deaths in the Hospital from all causes, exclusive of puerperal fever, were 93, being at the rate of 57,055 in 100,000 deaths, or 675 in 100,000 deliveries; in all England, they were at the rate of 68,478 in 100,000 deaths from all causes, or 362 in 100,000 deliveries. But in the returns of the Hospital there appear 17 deaths of patients admitted in a dying state, and 40 deaths arising from causes in no way connected with the puerperal state, none of which would be returned to the Registrar-General under this head; these being deducted, there remain 36 deaths as arising from labour, being at the rate of 261 in 100,000 deliveries.

Of the 13,748 labours recorded, so many as 12,332 were natural, according to the definition of Denman, that is, nearly 10 out of every 11 cases, or 887 in 1000; if we compare this with the statistics collected by Dr. Churchill, it will be found to be much below the average, which may fairly be estimated at 944 in 1000. A nearly similar high ratio obtained during the period to which the Report of Drs. M'Clintock and Hardy refer, viz., 882 in 1000, a circumstance due, no doubt, to the anxiety of those, who have already had a bad labour, to get into the hospital, and thus one of great importance in estimating the usefulness and relative mortality of such institutions.

The number and severity of the epidemics of puerperal fever experienced are the great regulators of the mortality of lying-in hospitals. During the period over which this Report extends, the Hospital suffered from more than the average amount of this disease, at least, more than it did in Dr. Collins' time, the deaths being 70 from this cause, whereas, if they had observed the same ratio to deliveries that he has reported, they would not have been more than 49. Other causes, too, contributed to increase the gross mortality; but here we must allow the authors to speak for themselves; they say:—

"In order, however, to arrive at a correct idea of the mortality of the Hospital, we may be permitted to deduct from the total number of deaths those who were admitted in a dying state, which latter amounted to 17. We thus leave a balance of 146 dying from all causes, or, *quam proxime*, 1 in 94. Then, if we deduct from the above 146 fatal cases those whose deaths had arisen from visitations of puerperal epidemics, viz., 70 victims to that disease, we reduce the sum to the number of 76 dying from all causes, or 1 in every 180⅔."

It is then shown that 40 of these 76 died from other than puerperal causes, the real causes of death being enumerated; and they proceed:—

"If then we deduct these from the 76 fatal cases, there remain 36 deaths which originated from labour, or 1 in every $381\frac{1}{2}$ of those delivered. Lest, however, this calculation should be objected to, we shall follow the outline pursued by Dr. Collins in his Report of the Hospital during his Mastership, and we shall include the 17 cases that were admitted in a dying state. We find, then, following his outline, that of 13,748 women delivered, 163 died, that is, as before stated, in the proportion of 1 in $84\frac{1}{3}$; if from this number be deducted the deaths arising from puerperal fever, these being considered accidental, and amounting to 70, there remain 93 who died from all causes, or 1 in $148\frac{3}{4}$; then, if we cull from out of these, those deaths which did not arise from the effects of labour, and which, as above shown, amounted to 40, we find that but 53 died, of whom it might be said their death resulted from labour, or 1 in $259\frac{2}{5}$ of the entire number delivered. We may here remark, that amongst those whose deaths originated from labour, we have included three cases concerning which considerable doubts existed as to whether death did really result therefrom."

We may observe that Dr. Collins, after this plan, makes out his mortality from causes due to labour 1 in 244, and that Drs. M'Clintock and Hardy make it 1 in 250, showing a considerable progressive improvement, one that will be seen, when we come to notice tedious labours, to be due in a great measure to the greater promptitude with which assistance was given in them, and also to the nature of the assistance given.

Chapter I. treats of purely natural labour, in its three stages. As to the first and second of these, it is not necessary that we should dwell on them here; the rules of practice as to their management are well established, and unanimously received: at a few points only shall we glance, before passing to the consideration of the third stage, concerning which there is less of agreement.

When the membranes gave way too early in the progress of the case, it was found that the anterior lip of the uterus dilated very slowly, and was apt to get compressed against the brim of the pelvis, causing the pains to become irregular and inefficient; to remedy this, the patient was kept strictly in the horizontal position, and on her back, and in the interval of the pains the lip was supported as high above the presenting part as possible, and thus relieved from pressure. On this being done, the pains generally returned, but sometimes it was found necessary

to stimulate the uterus by enemata. This is a frequent cause of delay in the first stage. The treatment recommended by position is good; the administration of a full opiate, in addition, has in our hands been productive of decided benefit. We have tried the plan of supporting the undilated lip, but without obtaining any very good results.

On the next point we entirely disagree with the authors. It is said that generally the membranes gave way before the complete dilatation of the os, and as this did not seem to retard the progress of the case, but rather to hasten it, there was no hesitation to puncture them with the finger-nail at this particular period, care being taken not to allow the waters to escape too rapidly lest the funis should be carried down with them.

We have ourselves sometimes tried this plan of puncturing the membranes at this particular period, and have convinced ourselves that it is one of those pieces of meddlesome midwifery that should be avoided. We have more than once seen the progress of the labour stopped and have found the os to contract again after we had ruptured the membranes, and therefore we are now careful in our own practice to preserve them entire as long as possible.

The next point is one of the greatest practical importance, viz.:—that during the expulsion of the child care should be taken to follow down the contraction of the uterus with the left hand, and except when symptoms of asphyxia appear, the expulsion of the body of the child should not, in any way, be hastened, and we notice it merely to express our pleasure at finding it again enforced in a Report of the Hospital.

The correct management of the placental stage of labour is still a subject of controversy: different directions are given concerning it in the three Reports of the Hospital; Drs. Sinclair and Johnston describe the practice as follows:—

"During the third or placental stage of labour, the left hand of the attendant resumed the charge '*of the contraction*,' which had been under the custody of the midwife while the cord was being divided. The command thus obtained over the uterus was never lost until the placenta had either been artificially removed, or naturally discharged, which latter occurred generally in about a quarter of an hour or twenty minutes. The binder was not adjusted, either, till the completion of this stage, and even not then till a sufficient time had elapsed to indicate that the uterus was likely to maintain a permanent contraction."

Dr. Collins describes the method he adopted as follows:—"As soon as the head and shoulders are expelled, the left hand

is instantly placed on the abdomen, immediately above the fundus uteri, thus following down by a steady pressure this organ as it contracts, so as to bring it as low into the pelvis as practicable, without using violence. We keep up this pressure *most diligently* from five to ten minutes after the feet are expelled, and when the womb feels firm and well contracted we make the nursetender supply our place, until the child is separated and the binder put on. If, however, the uterus should not feel firmly contracted after the separation of the child, we continue the pressure with the hands for some time longer, until we have as far as possible effected our object; we then apply the binder."

Unfortunately, Drs. M'Clintock and Hardy do not give as explicit directions for the management of this stage a those we have quoted from the other Reports; but the practice of the Hospital may be pretty safely inferred from what they do say in the following passage. As we enjoyed the privilege of being a pupil of the Hospital when Dr. Johnson was Master, we may be allowed to state that the practice was, as indicated in the foregoing quotation, to follow down the uterus with the left hand till the feet were expelled, and then, giving it in charge to the nurse, till the cord was divided and the child separated, to apply the binder with sufficient firmness, and wait till the placenta was expelled, when the binder was again tightened. If hemorrhage or relaxation should occur, these of course required to be attended to; but in the absence of these, neither the *most diligent* pressure of Collins, nor the continuous pressure of the authors, was allowed to be practised.

Drs. M'Clintock and Hardy speak of the use of the binder thus :—" In the hospital the binder is considered one of the most indispensable articles belonging to the lying-in room, and the highest importance is attached to its use. . . . In applying it, the degree of tightness ought to be moderate and uniform throughout, so as to exert an equable pressure on the abdomen from the epigastrium to the pubis. When put on in this manner, the binder is not only a source of comfort to the patient, but proves positively beneficial, by compressing the uterus, thereby lessening any disposition to relaxation, and by preventing that feeling of debility and faintness (occasioned by sudden evacuation of the uterus) which always tends to diminish the activity of uterine contraction. It is not to be inferred from this, however, that the binder should be used as a substitute for the hand in cases of extreme inertia—by no means; but its presence does not much interfere with our grasping the uterus, and if it should do so, the hand may readily be passed underneath, and our

object be thus obtained. It can hardly be questioned but that a proper attention to the binder promotes the favourable separation of the after-birth; and in confirmation of this assertion we would state that in one instance only, throughout the period comprised by this Report, and for two years previously, had the hand to be passed into the uterus for the removal of a placenta retained from hour-glass contraction; and in a very limited number of cases was it required in consequence of inaction. That this operation (the manual extraction of the placenta) is one which may involve very serious consequences, every candid practitioner will admit; but in hospital practice particularly are its results to be dreaded. On this account it must be conceded that any management by which its frequency can be diminished possesses very great advantages, and cannot be too strongly recommended."

It will be observed here, that pressure of the hand is to be reserved for cases of extreme inertia. On comparing the results obtained by these varying plans of practice, there will be less difference found than might be expected; still there is sufficient to make us retain our preference for the plan we learned under Dr. Johnson. The frequency with which the placenta was retained from all causes is greatest in the cases reported by M'Clintock and Hardy; least in those reported by Collins. Retention from inertia was also greatest in M'Clintock and Hardy's cases, but least in Sinclair and Johnston's. Retention from irregular contraction was least frequent in M'Clintock and Hardy's cases; more than four times more frequent in Sinclair and Johnston's; and nearly eight times in those reported by Collins. Inversion of the uterus occurs once in the cases reported by Sinclair and Johnston; not at all in those reported by either of the others. With regard to hemorrhage, it is difficult to form any comparison. Drs. Sinclair and Johnston seem to have only recorded those cases in which it was sufficient to endanger the life of the patient. The others recorded all the cases, but specifying those in which it was of such an extent as to cause fears for the safety of the patient, and those in which it was immoderate, but not causing danger to life. It appears that it occurred during the third stage to a dangerous extent most frequently in Drs. Sinclair and Johnston's cases; least frequently in Dr. Collins'—a fact that our experience of the difficulty of teaching students to grasp the uterus properly leads us to attribute to some awkwardness on the part of the attendants. It has more than once occurred to us to find a student holding a fold of integument, under the impression that he had command of the uterus. The very pos-

sibility of such a mistake is one of our reasons for objecting to the plan of continuous manual pressure. It must, however, be admitted, that holding the uterus properly may be the most likely way to prevent the placenta being retained from inertia, and perhaps to prevent hemorrhage from relaxation. But then there is the difficulty of having this done correctly, and the increased liability to irregular contraction, which seems to be considerable, to counterbalance any benefits arising from it. Under such a plan, too, the liability to inversion is greater, whether we regard inversion as the result solely of irregular contraction, as it no doubt frequently is, or as produced by mechanical causes. Moreover, we consider the binder applied immediately after the birth of the child as being as necessary a compensation for the pressure suddenly removed from the large vessels in the abdomen, as it is in the operation of paracentesis. We have thrown the several facts that we have gleaned from the three Reports on this subject into the following tabular form, reducing all the numbers to the uniform standard of 100,000 cases, for the convenience of comparison. Thus, then, Drs. Sinclair and Johnston met with retained placenta 57 times in 13,748 cases, which is equal to 414 times in 100,000 cases; Drs. M'Clintock and Hardy, 28 times in 6634 cases; or 422 in 100,000; and Dr. Collins, 66 times in 16,414 cases, which is equal to 402 in 100,000.

	Sinclair and Johnston.	M'Clintock and Hardy.	Collins.
Retained placenta, from all causes, . . .	414	422	402
Ditto, from inertia, ...	152	241	225
Ditto, from irregular contraction, .	65	15	115
Ditto, from morbid adhesion, . . .	196	165	60
Hemorrhage during 3rd stage, endangering life, ...	189	150	115
Ditto, immoderate, but not dangerous, ...	Not specified.	467	389
Ditto, after expulsion of placenta, endangering life, . . .	167	120	134
Ditto, not endangering life, . . .	Not specified.	376	261
Inversion of uterus, ...	7	0	0
Hand or fingers introduced for the placenta, from all causes, ...	385	422	402
Ditto, from inertia, ...	123	241	225
Ditto, from irregular contraction, .	65	15	115
Ditto, from morbid adhesion, . . .	196	165	60
Hand introduced for hemorrhage after the expulsion of the placenta, ...	36	30	188

Closely connected with the method of managing the placenta is the management of the uterus during the interval

between the expulsion of twins. Drs. Sinclair and Johnston recommend that it should be commanded by the hand, and the binder not applied till after the placenta has been expelled. Drs. M'Clintock and Hardy, and Dr. Collins, give very explicit directions to apply the binder immediately after the expulsion of the first child; unfortunately, the details given do not enable us to institute any comparison between the progress of the cases under these different plans of treatment, but to this we shall again allude when we come to the section on plural births.

The natural labours are divided by the authors into three groups:—1st. "Purely natural," where the vertex presented at the brim, in some one of the four positions of Naegelè, and passed through the pelvis in the usual mode common to whichever of those four positions it originally took at the brim; 2nd. Those cases in which some other portion of the head than the vertex presents; where an upper extremity occupies the brim along with the head, or where the head, having originally presented in the third or fourth position of Naegelè, does not pass through the pelvis in accordance with the usual mode of progress of either of these positions. This group, called "varieties of natural labour," comprises face presentations; face to pubes; and arm with head. 3rd. Premature labours, placed with the anomalous. Of the first group there were 11,874 cases, being 863 in 1000 deliveries. Of the offspring of these labours, 206 were still-born, being at the rate of 1734 in 100,000; but of the 206 there were 120 putrid at birth, leaving 86 deaths to be accounted for as connected with delivery; the authors have it 85, but this is evidently an error. Of the cause of death, in 52 there is no record; in 10 it arose from delay in delivery; in 3 to preternatural pressure, the pelvis being under-sized; 2 were born with the heart beating after a quick second stage, in which the uterine contractions were strong, but so rapidly following one another as to be virtually continuous; and in these two instances all efforts at resuscitation failed; in 2 the head being somewhat over-sized, the cause of death was preternatural cranial compression; in 2 the funis was tightened round the neck; 4 were the offspring of delicate mothers, and were themselves ill-conditioned; 1 was born of a syphilitic mother; in 1 case the mother met with an accident; in another, with a fright near the completion of her pregnancy; 4 were delivered outside the wards; over-exertion during pregnancy is given as the cause of death in 2, and exposure to cold for 1. Of the 120 children born putrid, intra-uterine death could not be accounted for in 96. Of the remaining 24, syphilitic taint was evident

in 5; fright of the mother is said to have caused death in 6; a fall in 1; poverty and affliction, 2; over-exertion, 6; and 4 were children of delicate parents.

Of the children born alive, 146 died in hospital: in 33 the cause was not ascertained; 60 were weakly and extremely delicate at birth; convulsions carried off 13; trismus, 15; 3 were born outside the wards, and were in a dying state when brought in; 14 were overlain, either accidentally or intentionally; 1 died of erysipelas; 1 of icterus; 1 of sclerema; 1 was the subject of arrest of development; 1 died of hydrocephalus; 1 of hemorrhage from the funis, which was not observed by the nurse until so much blood was lost as subsequently to prove fatal; 1 died of hemorrhage from the bowels; and 1 had been the subject of artificial inflation.

Of the 11,874 mothers whose deliveries had been purely natural, 67 died; 41, of puerperal fever; 4, of phlebitis; 3, of typhus; 2, of acute bronchitis; 1, of asthma; 1, of acute pleuritis; 4, of pneumonia; 3, of phthisis; 3, of disease of the heart; 1, of mental depression; 1, of erysipelas; 1, of scarlatina; 1, from destitution; and 1, from abscess of the brain. All these facts, as well as the duration of the several labours and the sex of the offspring, are admirably set forth in a most elaborate table; after which the details of the fatal cases of the mothers are given.

Of the "varieties of natural labour" there were 57 instances; but the sum total of face presentations, face to pubes and arm, with head presentations, amounted to 89. Thus the face presented 40 times, but in only 31 did the labour terminate naturally; there were 33 cases of face to pubes, but 20 of them only were natural; and there were 16 of arm with head cases, in 6 of which only was the labour natural.

We must here express our regret that all these 89 cases have not been detailed in one chapter; their importance surely demanded this; the fact that they are scattered through different sections proves that the systems of classification in common use, especially where time forms an item in the definitions, are artificial and very insufficient; however, we must be satisfied with being told, the natural cases having been detailed, that "the remaining ones shall be accounted for in their proper places, under the classes of labour to which they belong." Of the 13 face to pubes cases, not coming under natural labour, 6 occurred in twins,—3 of which, although labour did not exceed 24 hours, it had to be completed by the forceps; 3 exceeded 24 hours; and in 1 the perforator was found necessary. Of the 9 face presentations, 8 exceeded 24 hours; of which 1 was

delivered with the forceps; 2, by perforation; 4 were tedious; 1 was a convulsion; and the 9th was a twin case. Of the arm with head presentations, 9 were twin cases; and 1 tedious, with funis prolapsed.

It is very important to observe that the rule of treatment in face presentations was to leave them as much as possible to nature, and that no attempt was ever made to rectify them, that is, to change them from face to vertex positions, the chief care being to guard the perineum. We know that some writers have recommended turning in face presentations, and that others have described methods for rectifying the position of the head, all of them more or less hazardous; but here we have the experience of this large Hospital proving the competency of nature to deal with such cases. Another important observation of the authors is, that in all face cases, no matter what the presentation at the brim may have been, the head emerged from the pelvis with the chin to the pubes: thus rendering quite unnecessary the most dangerous manipulations recommended by Baudelocque, Lachapelle, and even more recently by Meigs, for insuring its assuming this position.

In arm with head, and face to pubes presentations, attempts were made to rectify these positions, by supporting the arm, or turning the face, but in both cases the efforts were generally unsuccessful; always, indeed, it would appear in face to pubes cases. We object very decidedly to all these attempts; we are convinced that they are seldom if ever successful, and, except in most skilful hands, are full of danger. The arm, we believe, never comes down with the head, except in a roomy pelvis, and the majority of cases terminated without assistance, —such is our own experience; of the sixteen here recorded, in only three can we find any record of instrumental assistance being required; and in these the necessity arose, not from want of room, but from incidental causes, viz., prolapse of the funis in one case, and inertia in the other two. We were once called to a case of this kind, where, by the manipulations used to rectify the position, the humerus had been fractured; the funis, which was prolapsed, torn; and considerable swelling of the mother's soft parts produced. It occurred in the hands of a very ignorant practitioner, no doubt, but it is an example, even though an exaggerated one, of the dangers attending attempts at rectification. The condition of the mother rendered immediate delivery necessary, and we perforated; however, it is worthy of note, that it was the second time this presentation had occurred with this woman, and that under the care of the

same attendant, the previous child had been born naturally, though with the humerus also fractured in the unsuccessful attempts to rectify the position.

Dr. Collins records 33 cases of face presentations, and 12 of face to pubes, and distinctly states, "that the *position* of the child did not in any instance render artificial delivery necessary;" and that "all attempts to alter the position of the head in the early period of labour, when found presenting in either of the above-mentioned ways, are, in his opinion, injudicious. The labour should be treated as one perfectly natural." Of the 33 face presentations, all were delivered without assistance; but of the 12 face to pubes cases, 4 were delivered by the crotchet; for reasons, however, not depending on the position. Drs. M'Clintock and Hardy record 14 face presentations, and 15 face to pubes, all delivered without assistance, the labours in one case only of each description exceeding eighteen hours' duration; 10 of the former, and 12 of the latter, being under twelve hours. Of head and arm cases Dr. Collins makes no special mention, though cases are incidentally alluded to in his Report; Drs. M'Clintock and Hardy mention 8, all delivered naturally, the labours of 3 being under six hours; 3 between six and twelve hours; and 2 between twelve and eighteen. Dr. Churchill represents these cases as being of very rare occurrence—only 3 in 75,903 deliveries; yet in these two Reports we have 24 head and arm presentations in 19,482 deliveries.

Of breech presentations the authors have recorded 309, of which 51 occurred in twin labours, and 258 with single children. Of these latter, 174 were born alive, and 84 dead, of whom 56 were putrid, leaving 32 as the number lost, probably in consequence of labour, that is, 1 in 8; or, including the putrid, 1 in 3. Of all the children born with breech presentation which were lost, Dr. Churchill's estimate, from all the cases he collected is 1 in $3\frac{1}{2}$. We shall only further notice in connexion with this class of labour, that in some instances respiration was observed to take place while the head was still in the vagina, and in keeping the chin down on the thorax due regard was had to admit air to the mouth, in which the forefinger of the operator had been placed. This was accomplished by means of retaining in a direction backwards as much as possible the then unpressed perineum, with the back of the hand so engaged. This measure, however, could not be relied on. In one case the metallic tube invented by Mr. Roberton of Manchester, for favouring respiration when there was delay

in extracting the head, was tried; the authors say it was of decided utility, and they assert that but for it the child would have been lost.

In 181 instances the child presented with the feet, 53 of which were twin cases, and 1 was a triplet. Of the 127 single cases, there were 68 living children born, and 59 dead, of whom 39 were putrid, leaving 20 as having been lost in delivery, that is, 1 in 6; or, including the putrid, about 1 in $2\frac{1}{6}$; Dr. Churchill's statistics indicate 1 in $2\frac{1}{2}$, as the proportion lost in such cases. In 60 labours, 18 of which were twin cases, some part of the upper extremity presented. Of the 42 single cases 10 were primiparæ, and 32 had children previously. In 7 of the primiparæ, delivery was by version, 2 by evisceration, and 1 at the sixth month was expelled by the efforts of nature. In one of the version cases delivery had to be completed by the crotchet, but 1 of these 10 mothers died, and that was from ulceration of the intestine; 8 of the children were dead, 2 of them having been putrid; 32 of the mothers who had previously borne children gave birth to 12 living children, and in 20 to dead ones, of whom 11 were also putrid. The mortality of the children was much increased in consequence of the late period at which the mothers came into the Hospital. Taking all the cases, 42 in number, but 14 children were born alive, that is, 1 in 3. Version was performed in the 42 single cases 25 times; evisceration, 8 times; in 2 cases fœtal evolution occurred, 1 being a male at the sixth month, dead and putrid; the other a female, at the seventh, also dead. The child was expelled by the natural efforts, doubled up, not by evolution, in seven cases, all of them at about the sixth month of gestation.

We come now to what seems to us the most important part of this Report, viz., that which treats of "Difficult labour." The authors have divided this class of labours into two sections:—1st, "Tedious," exceeding twenty-four hours, but completed without assistance, the head being the presenting part; and, 2nd, "Instrumental," being those in which instrumental aid is demanded irrespective of time, which is subdivided into forceps and crotchet cases, the vectis having been used but once during the seven years, and that in a twin case. In the tedious labours, the delay arose in the first or second stage; when occurring in the third, the case is recorded under another head. The delay often occurred in the first stage only, or chiefly, but not unfrequently in both. Of course, when in the first only, it was not regarded as of as much importance as in the second, still there was not attached to it that "immunity from danger accorded

by some practitioners." No case of cartilaginous os uteri, or of disease of the uterine cervical tissue, rendering dilatation impossible, was met with, nor do the authors seem to have ever found it necessary to resort to incisions into the cervix. In some cases of rigidity the tepid water douche of Kiwisch, administered by means of the double cylinder hand syringe invented by Dr. Sinclair, was tried, but as a sufficient opportunity of testing it fully did not occur, no opinion as to its efficacy is given.

Delay in the second stage was found to arise in some cases from inertia, sometimes traced to nervous irritability, or to over-distention of the bladder; in one instance to an enormous distention of the bowels from flatus, and occasionally to thinness of the abdominal muscles allowing of anteversion. In other instances it arose from rigidity of the soft parts, an extremely muscular condition of the interior of the pelvis, and from bands in the vagina. Ergot was given in that form of inertia when it appeared that all that was required to complete the delivery was strong action. It was given while the head was within reach of the forceps, so that at any time, should the fœtal heart have become affected, the child could be saved by that instrument.

Altogether there were 247 cases of "tedious labour;" the delay being in the first stage in 91, in the second in 68, and in both in 88. Of the offspring, 198 were born alive, and 89 dead. Twelve of the mothers died—5 of peritonitis, 1 of peritonitis with metritis, 1 of peritonitis and phlebitis, and 1 of peritonitis and sloughing; 2 died of inflammation and sloughing, 1 of perforating ulcer of the stomach, and 1 from post-partum hemorrhage.

Under the second section of "difficult" labours, viz., the "instrumental," we find recorded 200 forceps cases, and 130 of craniotomy, the vectis having been used but once in the Hospital, and that in a twin case. Before following the authors into the consideration of these, it will be convenient to draw attention here to the statistics of their operations in general. The entire number we find to have been, in the seven years, 436; of these, 51 were in twin labours, being 19 of version, 29 by the forceps and vectis, 2 of craniotomy, and 1 of evisceration. Deducting the 233 plural deliveries, and their corresponding operations, we have 385 operations in 13,515 single deliveries, about 1 operation in 35 labours. Of the children the subjects of the operations in single labours, there were 29 stillborn in forceps cases, 2 of which were putrid; 17 in versions, 2 also being putrid; 130

from craniotomy; and 8 from evisceration,—a total of 184, or at the rate of 48 per cent. of the operations.

Of the mothers, 46 died, being at the rate of 12 per cent. If our readers compare these numbers with those compiled by Dr. Simpson from the Reports of the hospitals of Vienna, Paris, and Dublin, it will be seen that the operations have been more frequent in the cases embodied in this present Report than in any of the others; that the mortality of the mothers has been more than one-third less than in the previous Reports of the Dublin Hospital, but still higher than in either Vienna or Paris, and that the mortality of the children has been less than in any of the others, except in Vienna under Böer. The facts collected by Dr. Simpson have been thrown by the editors of his works into a tabular form, which we copy here, adding, for the convenience of comparison, the numbers we have culled from Drs. Sinclair and Johnston. It does not appear whether the items in this table refer to single labours only, or whether plural births are included; but if in the present instance we include these latter, it does not make any material difference. It will in that case appear, that of 13,933 children born, 436 were the subjects of operation, or 1 in 32. Of the children operated on, 43 per cent. would be lost, and of the mothers, 11 per cent.

		Proportion of operative cases to deliveries.	Per-centage of Infants lost in operation.	Per-centage of Mothers lost in operations.
Vienna,	Böer,	1 in 55	47 in 100	6 in 100
	Arneth,	1 in 69	34 in 100	12 in 100
Paris,	Boivin,	1 in 61	28 in 100	,, ,,
,,	Lachapelle:—			
,,	1800 to 1810,	1 in 57	36 in 100	,, ,,
,,	1810 to 1820,	1 in 82		
Dublin,	Collins,	1 in 86	77 in 100	25 in 100
,,	M'Clintock and Hardy,	1 in 52	76 in 100	22 in 100
,,	Sinclair and Johnston,	1 in 35½	48 in 100	12 in 100

The figures referring to the Dublin Hospital, in this table, exhibit a very satisfactory progress as to the safety of both mothers and infants in operative cases. The great frequency of operations as to the total deliveries arises, in a great measure, from recourse having been had to the forceps at an early stage in the class of "difficult" labours; and that most favourable results to the mother and offspring arose from this promptitude in affording assistance, must be evident to all.

The distribution of these 436 operations, and their results, were as follows:—

		Per-centage of Mothers lost in operative cases.	Per-centage of Children lost in operation.
		Per cent.	Per cent.
Forceps, ...	229	5·6	16
Craniotomy, . . .	122	20·4	100
Versions, ...	66	12·1	29
Eviscerations, . .	9	22·2	100

Interesting as such statistics as these are, from the fact of their showing both the relative and absolute frequency of operations, they cannot be depended on as indicating the value of any particular kind of operation, or the mortality of mothers or children consequent on it. To obtain information on these points, it is necessary to examine separately each class of cases, for which the operations are intended. We shall now proceed to examine with this view the class of tedious and difficult labours, comparing the directions given for their treatment in the three Reports of the Hospital last published, or rather the directions given as to the use of the forceps, the only or the chief point on which there is any difference, and the results obtained by each mode of practice.

On referring to Dr. Collins' Report, it will be seen that he limits the use of the forceps in tedious and difficult labour to cases where the child is known to be alive, the os uteri fully dilated, the soft parts relaxed, and the head so low in the pelvis as to bring the ear within reach of the finger. When the ear cannot be reached with the finger, the only means of effecting delivery is, he says, by lessening the head; and he asserts that if the patient has been properly treated from the commencement of the labour, there will be no symptoms in the mother requiring this operation till after the death of the child.

During the period for which Drs. M'Clintock and Hardy reported the practice of the Hospital, the conditions that were considered indispensable in order to render the forceps applicable, and without which they were not used, were:—

1st. That the child should be alive, or at least that there should not be any grounds for supposing it to be dead.

2nd. That the head had remained stationary within reach of the forceps for six hours at least, but this was not rigidly adhered to; as, for instance, under the existence of any pressing complication, as hemorrhage, convulsions, &c.

3rd. That the ear could be felt without force or violence.

4th. That there be no undue heat, dryness, tumefaction, or morbid sensibility of the mother's soft parts. The reporters assert that in the vast majority of instances the death of the child can be positively ascertained by the aid of the stethoscope; that in all the perforations for difficult labour recorded, the numbers in which they were not assured of the child's death, before undertaking the operation, did not exceed three. And it appears that, the child being dead, it was not the practice of the hospital to wait for the full development of bad symptoms before operating, but it was usual to wait some hours after the fœtal heart had ceased to be heard.

On comparing these rules of practice with those laid down in the Report of Drs. Sinclair and Johnston, very important differences will be observed. In the first place, time was never so much taken into consideration, in determining on the application of the forceps, as the state of the mother and child; secondly, the development of absolutely bad symptoms was not waited for; the practice being to cut short the labour where there was reason to apprehend their advent; and, in the third place, it was not thought necessary to feel the ear.

In cases of inertia in the second stage, the head having entered the brim, ergot was given and the fœtal heart watched, and if its action was found to fail, the forceps were used promptly. When the heart had never been heard, it was presumed the child was alive, and if, after the administration of ergot, the progress of the head was not sufficient, assistance was given. In powerless labour, when ergot and stimulating enemata failed to excite uterine action, the delivery was completed by the forceps. But in powerless labour, with the head pressing on the perineum, delivery was at once effected, without waiting for the ergot. In cases of disproportion depending on the head, or where the head was misplaced, should symptoms of impending rupture appear, or should the pulse rise above 100, and the tongue become dry, the progress of the head was deemed of no account, and interference was considered to be demanded. In all cases of pelvic narrowing, when the head could be seized, and there was no positive proof of the child's death, the forceps were tried before resorting to the perforator and crotchet; by following this practice children, which at first it had not been expected could have been preserved, have in many cases been saved, and with perfect impunity to the mother.

The knowledge that patients had been delivered before with the forceps had due weight in determining their subsequent use,

but they were not always required in such cases. When vomiting occurred, after the head had been well in the pelvis, even though there were no other bad symptoms, or where there was delirium at this stage, or where the patient was much exhausted by the duration or severity of her labour, or where a labial thrombus was observed to be commencing to form, recourse was had to the forceps.

Delivery was completed by their aid, as a general rule, while the patient was under the full influence of chloroform; but this was sometimes dispensed with, and the attempt to put them on, when she was only partially under its influence, was found difficult and dangerous.

The position in which they were first attempted to be applied was obliquely lateral; should this fail, or delivery not be completed, they were withdrawn, and tried in the antero-posterior position; and, this failing, were again tried in the former, the child being often saved, and with impunity to the mother, in consequence of the perseverance. It was not thought necessary to feel the ear, and it was seldom sought for. Frequently it could not have been reached, as the instrument was often used when the head was not half way through the pelvis, or had scarcely entered the brim.

We find that the forceps were used, exclusive of twins, in 200 cases, that is, 1 in $67\frac{1}{2}$. According to Dr. Churchill's statistics, British practice affords 1 forceps case in $342\frac{1}{10}$ deliveries; French, 1 in 140; and German, 1 in 159; the average of the three being 1 in $176\frac{1}{3}$.

Of the 200 cases, 32 were complex labours, and 168 were for difficult labour. Of the offspring of the latter, 20 were born dead, being 1 in $8\frac{2}{3}$; the average, according to Dr. Churchill, being 1 in $4\frac{1}{3}$; and of the mothers, 6 died, being 1 in 28. But 3 of these died from truly accidental causes,—scarlatina, pneumonia, and mental anxiety, and should be excluded; reducing the proportion to 1 in 56. Including the complex labours, there were 11 deaths out of the entire 200 forceps cases, being 1 in $18\frac{2}{11}$; the proportion in British practice being 1 in $20\frac{3}{4}$; and in French and German, 1 in $14\frac{3}{4}$: the average 1 in $16\frac{1}{2}$.

Our present object is, however, rather with the comparative results of the modes of practice, of which we have given a sketch, as being recommended in the three Reports. For arriving at these, the two last published afford considerable facilities; but that of Dr. Collins does not go so fully into the details; we have, therefore, often been obliged to arrive at the particulars by comparing the several parts of the Report. This

we have done with as much accuracy as possible, and now submit the facts we have ascertained, again reducing the numbers to the uniform standard of 100,000, for the convenience of comparison, which is necessary, in consequence of the great difference in the number of cases recorded in each.

Dr. Collins noted the duration of labour in 15,850 cases, of which 264 exceeded 24 hours: taking these as tedious and difficult cases, as has been done by Dr. Simpson, Dr. Churchill, and others, we have such cases occurring at the rate of 1694 in 100,000 deliveries. Drs. M'Clintock and Hardy met with labours of this class more frequently, viz., at the rate of 3904; the experience of Drs. Sinclair and Johnston being nearly the same, viz., 3738 in 100,000 deliveries. Dr. Collins allowed two-thirds of his cases to be delivered without assistance; or, to be exact, at the rate of 64,772 in 100,000 such. Drs. M'Clintock and Hardy report their cases as being delivered naturally, at nearly the same rate, viz., 66,795; and Drs. Sinclair and Johnston at the rate of 48,054 only. In Dr. Collins' difficult cases he used the forceps in 14 only, being at the rate of 5303 in 100,000. Drs. M'Clintock and Hardy report 18 forceps, and 16 vectis operations in their cases, being a total of 13,127 in 100,000: and Drs. Sinclair and Johnston report the forceps as having been used 168 times, being at the rate of 32,684; but Dr. Collins performed craniotomy at the rate of 29,924 times in his cases; and Drs. M'Clintock and Hardy at the rate of 20,077; and Drs. Sinclair and Johnston, 19,260 times.

The maternal mortality in the whole class of difficult cases with Dr. Collins was at the rate of 11,742; with Drs. M'Clintock and Hardy, 8494; and with Drs. Sinclair and Johnston, it was 6031, or little more than one half of Dr. Collins'. Of the entire tedious and difficult cases that were allowed to be delivered without assistance, the maternal mortality with Dr. Collins was at the rate of 7017; with Drs. M'Clintock and Hardy, 5202; and with Drs. Sinclair and Johnston, 4856; being little more than half of Dr. Collins'. With Dr. Collins, the mothers delivered with the forceps for difficult and tedious labours died at the rate of 28,571 in 100,000 operations; with Drs. M'Clintock and Hardy, 14,705; and with Drs. Sinclair and Johnston, 3571 only, being less than one-eighth of Dr. Collins' mortality, and one-fourth of the other. Of craniotomy cases, the maternal mortality with Dr. Collins was at the rate of 18,987; with Drs. M'Clintock and Hardy it was 15,384; and with Drs. Sinclair and Johnston, 13,131; little more than two-thirds of the mortality of Dr. Collins'.

The results to the children are also very favourable in the

recent Report. We find that 113 of Dr. Collins' 264 tedious and difficult cases gave birth to still-born children, being at the rate of 42,803 in 100,000. Of the 259 cases reported by Drs. M'Clintock and Hardy, 120 children were still-born, being 46,332 in 100,000; and of the 514 of Drs. Sinclair and Johnston, 168, being at the rate of 32,684. Dividing these into the three classes, as we have done in speaking of the mothers, it appears that of 171 tedious and difficult cases delivered without assistance, under Dr. Collins' care, 29 gave birth to still-born children, being at the rate of 16,959 in 100,000 such cases left to nature; but it is to be observed with regard to these numbers, that though we have taken pains to make them as nearly true as possible, they cannot be as absolutely relied on as the others, Dr. Collins' Report not being explicit on the subject. Of the 173 similar cases in Drs. M'Clintock and Hardy's Report, 52 children were still-born, being at the rate of 30,057; and in Drs. Sinclair and Johnston's 247 cases there were 49 still-born children, being at the rate of 19,838. On careful examination, however, good reason will be found for attributing this high mortality in the two last Reports to the use of ergot of rye in these cases, a drug that Dr. Collins makes no mention of having ever used; Drs. M'Clintock and Hardy mention that in 30 of the 173 unassisted cases it was administered, and that though in nearly every one of these there was evidence, at the time, of the child's vitality, yet 20 were still-born. Deducting these as having been killed by the ergot, the infantile mortality in unassisted, tedious, and difficult cases will be reduced to 18,497; and in the same way 6 should be deducted from Drs. Sinclair and Johnston's numbers, as being also probably attributable to the ergot, reducing their proportion to 17,408.

Of Dr. Collins' 14 tedious and difficult cases delivered by the forceps, there were 5 children born dead, being 35,714 in 100,000 forceps operations. In Drs. M'Clintock and Hardy's forceps and vectis cases combined, the proportion of children still-born was 50,000; and in Drs. Sinclair and Johnston's 11,904, being one-third of the deaths met with by Dr. Collins and less than one-fourth of the proportion recorded by Drs. M'Clintock and Hardy.

The facts that we have collected on this subject from the three Reports are arranged in the following table, exhibiting at a glance the results just mentioned. The diminution in the mortality recorded in the authors' Report, of the mothers who had been the subjects of operation, is much more marked in the forceps cases than in those where the perforator was used.

COMPARATIVE STATISTICS OF TEDIOUS AND DIFFICULT LABOURS RECORDED IN THREE REPORTS OF THE DUBLIN LYING-IN HOSPITAL.

	COLLINS.		M'CLINTOCK AND HARDY.		SINCLAIR AND JOHNSTON.		TITLE OF STANDARD.
	Actual numbers in 15,580 deliveries.	Reduced to uniform standard of 100,000.	Actual numbers in 6634 deliveries.	Reduced to uniform standard of 100,000.	Actual numbers in 13,748 deliveries.	Reduced to uniform standard of 100,000.	
Total number of tedious and difficult labours, ...	264	= 1694	259	= 3904	514	= 3738	In 100,000 deliveries.
Of which there were delivered without assistance,	171	= 64772	173	= 66795	247	= 48054	In 100,000 tedious and difficult labours.
Ditto, by forceps or vectis,	14	= 5303	34	= 13127	168	= 32684	Ditto, ditto.
Ditto, by perforator, . .	79	= 29924	52	= 20077	99	= 19260	Ditto, ditto.
Deaths of mothers:—							
Total, after tedious and difficult labours, ...	31	= 11742	22	= 8494	31	= 6031	Ditto, ditto.
Of whom had been delivered without assistance, . . .	12	= 7017	9	= 5202	12	= 4856	In 100,000 tedious and difficult labours, unassisted.
Ditto, by forceps or vectis.	4	= 28571	5	= 14705	6	= 3571	Ditto, by forceps.
Ditto, by perforator, . .	15	= 18987	8	= 15384	13	= 13131	Ditto, by perforator.
Deaths of children:—							
Total still-born after tedious and difficult labours, ...	113	= 42803	120	= 46332	168	= 32684	In 100,000 tedious and difficult labours.
Of whom had been delivered without assistance, . .	29	= 16959	52	= 30057	49	= 19838	Ditto, unassisted.
Ditto, by forceps or vectis,	5	= 35714	17	= 50000	20	= 11904	Ditto, by forceps.
Ditto, by perforator, . .	79	= 100000	52	= 100000	99	= 100000	Ditto, by perforator.

Table to be read thus:—Dr. Collins met with 264 tedious and difficult labours in 15,580 deliveries, which is equal to 1694 in 100,000; and of the 264 he allowed 171 to be delivered without assistance, which is equal to 64,772 in 100,000 tedious and difficult cases, &c. &c. Again, 31 of the 264 mothers died, which is equal to 11,742 in 100,000 tedious and difficult labours. 12 of the 31 who died had been delivered without assistance, which is equal to 7017 deaths in 100,000 tedious and difficult labours allowed to be completed without assistance, &c. &c.

N. B.—It is to be observed, that the items in Dr. Collins' Report are not specifically set forth; we have consequently been obliged to arrive at some of them by inference, founded on other parts of the book. The infantile mortality in tedious and difficult labours completed without instrumental assistance was, in Drs. M'Clintock and Hardy's cases, greatly increased by the use of ergot of rye. 20 of the deaths were evidently due to this cause; deducting these, the proportion is reduced to 17,919; Drs. Sinclair and Johnston's number should also be reduced by 6, in which ergot was given, making the proportion 17,408.

This is doubtless due to the earlier period at which the operation was undertaken: thus it appears that the average duration of the entire of the forceps and vectis cases reported by Drs. M'Clintock and Hardy was 34 hours, and that, of the cases in which the mothers died after these operations, it was 44 hours; whereas the average length of the forceps cases in Drs. Sinclair and Johnston's Report was 29½ hours only, and that of their fatal ones was 36 hours. And it further appears that the average duration of the craniotomy cases in both these Reports was nearly equal to that of the fatal forceps cases respectively—Drs. M'Clintock and Hardy's cases averaging 42 hours, and the fatal ones 47; and the authors', 37 hours, and the fatal ones 36. Dr. Simpson has shown from the data in Dr. Collins' Report, that in the entire number of cases whose duration was noted, the deaths of the mothers were at the rate of 1 in 6 of those whose labours exceeded 36 hours. We cannot then fairly attribute the high mortality of the craniotomy cases to the operation, seeing that it is, in both of these latter Reports, above this average, viz., 1 in 7. Dr. Simpson has also shown from the same data that the probable number of deaths in the entire labours, having a duration of from 24 to 36 hours, is one in 17; and we have seen in the last two Reports that in one where the average duration of the labour before using the forceps, was 34 hours, the mortality of the mothers was 1 in 7, being about what might be expected at between 34 and 36 hours; and in the other, where the labour was not allowed to go on beyond 29½ hours, the mortality was only 1 in 28, showing a great saving of maternal life in consequence of the early use of this instrument.

There are no questions in the practice of midwifery more difficult or more important than those that arise with respect to the use and choice of instruments, and though there has been much controversy on the subject, this is perhaps the first time that an opportunity has occurred for bringing the disputed points to a practical test; we will therefore, we hope, be excused for the length at which we have dwelt on the subject. To those who have, like ourselves, been in the habit, as has long been the established practice in the hospital with which we are connected, of making free use of the forceps, such results as we have now detailed must be most encouraging.

To us also it is a source of much pride that in the pages of this Journal first appeared the essays of Dr. Churchill, the present learned Professor of Midwifery in our University, which, along with those of the late Dr. John Beatty, published in our immediate predecessor, the Dublin Medical Transactions; and

those of Dr. Thomas Beatty, published with Dr. Churchill's in our first series, exercised such important influence in drawing the attention of the Dublin School to the true merits of this instrument, and led to the establishment of a mode of practice whereby the operation of craniotomy, at all times a terrible one, has been rendered less frequent in tedious and difficult labours by nearly 11 per cent.; the mortality of mothers the subjects of such labours has been reduced to one-half; and the mortality of the offspring lowered by more than 10 per cent. To all, it must be most gratifying to find that such progress is being made in obstetric art and manipulative skill, a progress bringing such increased safety to both mother and child; but we cannot forbear remarking on the strange circumstance that, in the face of all this, the obstetric profession has lately been made the subject of much vituperation, and have had not a little of the "odium theologicum" heaped upon them for their low "morality" displayed, it is said, in their fondness for craniotomy. Stranger still, Dr. Churchill, who has taken such a leading part in the advocacy of the forceps, has been in a measure singled out for special condemnation for his "child-murdering" predilections!

We now leave this part of the Report, of which, if we have not grievously failed in our purpose, we have said enough to make our readers anxious to study it for themselves, and we have no doubt but that those who do so will agree in pronouncing it one of the most important contributions that has been ever made to practical midwifery, and one that will afford material for thought so long as obstetric science is cultivated Our limited space will oblige us to glance but very hastily at the remainder of the book; but, before leaving this chapter, we must be allowed to draw particular attention to the directions given as to the method of making traction with the forceps, namely, that it should be done during or in imitation of a pain, and only in one direction, that of the curve of the axis of the pelvis, *lateral motion* of any kind, such as *see-sawing* or *twisting* the grasped presentation, being never permitted. We must also beg to express our full concurrence in the axiom, "that, in doubtful cases where their application is easy, the error was on the right side to complete the delivery by their aid."

Part the fourth of the Report treats of anomalous labours, opening with plural births: of these there were 233 cases of twins, and one of triplets, from which it appears that Ireland is even exceeding herself in being prolific. Dr. Collins tells us that in France the proportion of twins is 1 in every 95 births; in Germany, 1 in 80; in England, 1 in 92; in Scotland, 1 in 95;

and in Ireland, 1 in 62; but during the seven years embraced in this Report, notwithstanding that they began so soon after the famine, the proportion was 1 in 58.

There are very many interesting facts recorded as to the progress of these cases, but, unfortunately, no account of the interval that was found to elapse between the births of the children, thereby depriving us of the power of comparing the results of the peculiar mode of practice adopted, to which we have already alluded in speaking of the management of the third stage of natural labour. This peculiarity consists, as we have already explained, in holding the uterus with the hand during the interval, instead of applying a binder, as is usually done, and as is recommended in the other Reports. The prime object of this treatment, it is said, is to have as short an interval as possible. Judging from the entire duration of the labours, our only means in the absence of a precise knowledge of the length of the intervals, the plan adopted must be very inferior to that of applying the binder, for we find that the average duration of the labours was 11 hours, whereas in Dr. Collins' Report it was only 6 hours and 40 minutes, and in that of Drs. M'Clintock and Hardy, 7 hours and 49 minutes. In 29 instances out of the 233 was the second child, though presenting with the head, subjected to operation, that is, in 12 per cent. of the 233 cases. In Dr. Collins' Report we only find 4 operations under the same circumstances, that is, $1\frac{2}{3}$ per cent. of the entire number; and in Drs. M'Clintock and Hardy's 95 cases there seems to be but one in which an operation was necessary to deliver the second child, the head presenting. Judging from these facts, we see no great reason, either, to give up the use of the binder. On the other hand, there seems to have been less hemorrhage in Drs. Sinclair and Johnston's cases than in those of either of the other reporters.

In 33 instances it is said there was but one placenta for the two children: this is a point of considerable physiological interest. A similar statement is made in Drs. M'Clintock and Hardy's Report, and the fact is very generally believed, but in all the cases of the kind that we have had an opportunity of examining, we have been able to satisfy ourselves that there were really two distinct placentæ, though closely united, and we have reason to know that some of our most expert operators have always failed in attempts to cause injection to pass from one placenta to the other.

The next form of anomalous labours considered by the authors is that in which prolapse of the funis took place. This accident occurred 98 times. In 23 of these cases the cord was

pulseless when the patient was admitted, or when the prolapse was discovered; of the remaining 75, we find that 44 gave birth to living children, being at the rate of 58¾ per cent. On comparing this with the cases recorded in the other Reports, it will be seen that a great increase of safety to the child has been obtained. In Drs. M'Clintock and Hardy's Report, after deducting the premature, putrid, and pulseless cases, there are 26 cases of prolapse in which birth was given to 12 living children, being at the rate of 46 per cent, and in Dr. Collins', after making similar deductions, the per-centage of living children is only 36.

Of the mothers, our authors report 3 as having died,—one from peritonitis and sloughing of the vagina, after craniotomy, the waters having escaped 48 hours before she came into the Hospital; of the others, one was in the last stage of phthisis when delivered, but lingered to the twenty-first day; and one died from acute bronchitis, under which she was suffering when admitted. Both of these were delivered naturally, and it is to be observed that the other was delivered by craniotomy.

Of Drs. M'Clintock and Hardy's cases, one mother died from the effects of hemorrhage before delivery; and of Dr. Collins' cases he says:—"None of the mothers sustained any injury in the delivery"—an expression that would we believe be equally true in reference to the cases in both of the other Reports.

The mode of practice pursued in these cases will be seen from the following statement:—

MODE OF DELIVERY IN CASES OF PROLAPSE OF THE FUNIS.

	Natural.	Cord replaced, and Child born living.	Forceps.	Version.	Craniotomy.	Evisceration.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Sinclair and Johnston,	58	3	9	16	12	1
M'Clintock and Hardy,	62	13½	3	8	11	0
Collins, ...	75	5	1	4	14½	0

From this it appears that Drs. M'Clintock and Hardy have had most success in replacing the cord, and in their Report they give a minute description of the process by which this was accomplished. Our authors describe a very similar method as having been followed in the cases reported by them, but without an equal measure of success. Dr. Collins tried several methods of replacing the prolapsed part, and, when he succeeded, introduced a sponge to retain it in its place. With re-

gard to the cases in which version was performed, it is to be observed that the authors report this operation as having been performed 14 times where the presentation was natural, and that 12 of the children were born alive. In one case delivery had to be completed by perforation, on account of narrowing of the pelvis, and in another the child was lost in consequence of delay in extraction, caused by the hand and arm being engaged behind the head. The mothers in all these version cases, made good recoveries, and left the Hospital on the eighth day, except one in whom a labial thrombus formed, which retarded her recovery, keeping her six weeks in the Hospital.

During the periods embraced in the other two Reports there were no cases of version in cases where the head presented, the operation being considered too perilous to the mother to be attempted on the small chance it was thought to afford of saving the child. The increased safety to the child reported by the authors is evidently due in a great measure to these version cases, the result of which to the mothers has left nothing to be regretted, or to prevent the practice being generally adopted.

Accidental and unavoidable hemorrhages are next considered by the authors, but though their remarks on these are most excellent, we must pass them over. The next form of anomalous labour treated of is that where convulsions occurred. Of these cases more than the average were met with, the proportion being 1 in 218 deliveries, the numbers in the other Reports being 1 in 510 in M'Clintock and Hardy's, and in Dr. Collins', 1 in 547. According to Dr. Churchill, the average of all observers is 1 in 693¾ only. The explanation of this is, probably, that many cases were brought to the Hospital after convulsions had set in, and that many did not comply with the rule of the house as to presenting themselves at the dispensary before their labours began, as due attention appears to have been paid to the premonitory symptoms when the opportunity was permitted. All these cases of convulsions are detailed, and with sufficient minuteness to be of great value to future inquirers, but we must express our belief that the subject has not been fully thought out by our authors, as is indicated by their stating that all convulsions are either hysterical or apoplectic in their nature, a doctrine that their own cases would sufficiently refute.

We next come to labours anomalous from rupture of the uterus or vagina. It will afford great pleasure to all to perceive the small proportion of these cases met with; a fact, no doubt, due to the early assistance given in difficult cases.

The entire number met with was only 17 in 13,748 deliveries, being 1 in 808; in M'Clintock and Hardy's Report the proportion is 1 in 707, and in Collins', 1 in 482¾. Of the 17 cases, the rupture had occurred in 7 before the patients were admitted to the hospital, the proportion occurring in Hospital thus was 1 in 1374 only. Making a similar allowance in the other cases, the proportion in M'Clintock and Hardy's Report is, 1 in 1327, and in Dr. Collins's, 1 in 529—results showing an improvement, not only in the hospital practice, but in the extern also.

Our space will not permit us to notice the remaining sections of this fourth part of the work, and indeed a few only of those included in the fifth part, which treats of miscellaneous subjects, and concludes the book. Of this part, the first and second chapters are devoted to post-partum and secondary hemorrhage, and then we have one on the induction of premature labour, of which operation six cases are given, but as the principal of these have already appeared in our pages among the proceedings of the Obstetric Society, it is not necessary to dwell on them. In all the cases the water-douche of Kiwisch was the means employed to bring on the labour; and for its application the instrument invented by Dr. Sinclair was found most convenient.

Chapter IX. of this part is devoted to the consideration of the use of ergot before delivery. Altogether, this drug was administered before delivery to 109 patients, who gave birth to 113 children, of whom 12 were dead-born. These cases the authors divide into four groups. The first consists of 18 cases, in which the child was born within three-quarters of an hour after the first dose of ergot; of these, there were 16 living children born, and 2 dead, that is, 1 in 9; but delivery required to be completed with the forceps in 7 instances.

The second group consists of 44 cases in which delivery was completed within an hour; of these there were 41 living and 5 dead children born, being rather more than 1 in 9. Of the labours, 28 required to be completed with the forceps. The third group consists of 30 cases, in which the child was born in from one to two hours after the first dose of ergot; of these there were 27 living and 4 dead children born, being 1 in 8 nearly; but 20 of the labours required to be completed with the forceps. The fourth group consists of 17 cases, in which from three to eighteen hours elapsed before the birth of the child; 11 of these were complete within four hours, and only 1 ran on to eighteen hours. Of the children, 17 were born alive, and 1 dead, and 6 of the labours were completed by the forceps.

Of the 109 cases, in 61 the labour was completed by the forceps, a circumstance to which the low mortality of the children must be attributed. We have already observed that in 30 cases in which the drug is reported to have been used by Drs. M'Clintock and Hardy, 10 of the children only were born alive, though they were known to be alive when the medicine was given.

Dr. Collins does not seem to have used the medicine at all before delivery in his cases, nor do we ever, except under peculiar circumstances, in the hospital with which we are ourselves connected.

The next chapter is concerning the use of chloroform: it is so short, and of such practical importance, that, if we had space, we would extract it at length. We must, however, refer inquirers to the book itself, observing, in passing, that in natural labour anæsthesia was not pushed to its full extent, but in all operations, unless there was some contra-indication or some objection on the part of the patient, complete insensibility was produced. In 313 cases the chloroform was used to this extent, in none of which did any untoward accident occur, though in some cases it was found necessary to discontinue the inhalation. In 5 out of the 313 cases, hemorrhage after delivery took place, 1 being after the birth of twins, but in none was it difficult to restrain.

Chapter XI. is on puerperal fever; in it we have only the cases which recovered considered, but we have a table with the particulars of all the cases, and references to the pages at which they are to be found, which in some measure compensates for their being scattered through the book according to the several classes of labour after which they occurred.

If, where there is so much that is excellent, we could permit ourselves to find fault, it would be with the manner in which the subject of puerperal fever has been handled. Suffice it to say that, like the pathology of convulsions, the matter has not been thought out; it is true, that the object has evidently been to allow the facts to speak for themselves, and that with this view the details are very fully given; but a pathology that allows puerperal fever and peritonitis to be constantly used as equivalent terms could not be passed over in silence here. Before quitting this subject, we must notice a remarkable fact mentioned by Dr. Collins, to which, strange to say, there is no allusion in either of the subsequent Reports. The fact to which we allude is, that during the last four years of his Mastership there was not a single death from puerperal fever, though there were 10,785 patients delivered in the Hospital. Dr. Collins

attributes this to the system of chlorine fumigation, ventilation, and stoving of the bedclothes, that he adopted; we have, however, good reason to believe, that the same system has been fully carried out by his successors; and if so, the fact can only be regarded as one of those of such frequent occurrence in medicine that would tempt even the most cautious into a hasty inference. At all events, we cannot but regret that a statement so hopeful and encouraging should not have met with the notice it deserved. The remaining chapters are on phlegmasia and phlebitis; on children dying in the Hospital; and on sloughing of the vagina and labia; and the book closes with a very complete and copious index, compiled by Dr. Minchin, which adds not a little to the usefulness of the whole.

We cannot take our leave of this treatise without again expressing our admiration of the care with which the facts were collected. Here was no spasmodic effort, but the calm, steady, and patient work of seven years. We would be glad if our authors had told us how it was accomplished. Organized and superintended by Dr. Shekleton it must have been, as he alone was in office throughout the whole period; but in its performance each of his five assistants must have borne no mean share, and all may well be proud of its fulfilment. Nor is the manner in which the result of so much labour is put before the public unworthy of its object: the anxious care with which the facts have been arranged, tabulated, and compared, so as to bring all into due prominence, must ever reflect credit on the authors, and will without doubt serve to advance obstetric medicine, and uphold the honour of the Dublin School of Midwifery.

Koleran i Stockholm 1856, *och Smittkopporna derstädes* 1856–57. *Statistiska Rapporter;* af DR. C. G. GRÄHS. Ur Hygiea, April, 1858.

Cholera in Stockholm in 1856, *and Epidemic Small-pox in the same City in* 1856 *and* 1857. *Statistical Reports* by DR. C. G. GRÄHS. Reprinted from the Hygiea for April, 1858. pp. 15.

OUR indefatigable colleague, Dr. Grähs, keeps us *au courant* with the epidemics of the Swedish capital. We regret to find that the chronicling of the invasions of cholera has become an almost annual task; even in the present autumn, according to the last Report we have seen, namely, up to the 18th of September, the cases have been 511, the deaths 217.

In 1856 cholera made its appearance in Stockholm, in the commencement of July; during the preceding months there had been, from the end of January to the beginning of May, a considerable amount of illness, which diminished so steadily in June, that at the commencement of the following month the public health appeared to be in a highly satisfactory condition. Meteorological observations did not exhibit any great or unusual atmospheric peculiarities. The heat, the average of which was tolerably high during the months of June and July, did not at any time exceed 77° F., and the amount of rain was, likewise, in general very small, except in the month of May, when it amounted to 3·085 inches. The total number of cases of cholera was 185, of which 98 were fatal; the first case occurred on the 7th of July, the last, on the 28th of December; the last death took place on the 19th of the latter month.

Of the 185 persons attacked, 125 were males, and 60 females; of the 98 who died, 62 were males, and 36 females. The per-centage of mortality was, therefore, of males attacked, 49·6; of females, 60; and of the whole number of those who sickened, 52·9. The per-centage of the population which sickened was about 0·2, while the fatal cases were 0·1 per cent.; in other words, every 529th person in the capital was attacked with cholera, and every 999th person died of the disease. Dr. Grähs adduces several facts to show that the epidemic was on this occasion of spontaneous origin.

The particulars brought forward by Dr. Grähs in reference to the epidemic of small-pox, as it appeared in the years 1856 and 1857, are very important; we shall briefly allude to a few points.

It is shown, that during the entire course of 1855, only two persons affected with small-pox were under treatment in the temporary hospital in Stockholm, and that, after the 4th of July in that year, when the last of these patients was dismissed cured, no case occurred until the 3rd of June, 1856, on which day a fishmonger's assistant, aged thirty-two, vaccinated, was admitted into the hospital, labouring under the disease. He had the day before returned from a journey to Ånland, where, as he stated, he had not been in contact with any person in small-pox, but had been in a house in which, it seems, such a patient lay at the time.

From the date last mentioned to the 1st of January, 1857, 208 persons affected with small-pox were received into the temporary hospital, of whom 44 died; and from the 1st of January to the 31st of December, 1857, the number of patients

admitted was 938, while the number of deaths was 155. Taking into account those treated at the Sabbatsbergs Small-pox Hospital, it would appear that in the space of eighteen months, 1312 small-pox patients (795 males and 517 females), had been taken care of under temporary arrangements, and through the measures adopted in the emergency by the Corporation; and that, of these patients, 1096 recovered, and 216 died; the mortality, therefore, amounted to 16·4 per cent.

Dr. Grähs appends several tables which show that the mortality was highest under the age of five years, and that this great mortality was due to the large number of children who were not vaccinated. The next most fatal time was old age, or the advanced periods of life, the mortality was lowest between ten and twenty years of age.

The mortality of vaccinated patients amounted to 13·1 per cent.; of those whose vaccination was doubtful, to 34·7; and of those who were not vaccinated, to 42·5 per cent.

The most favourable result of all was afforded by those who had recently been re-vaccinated: of nine persons belonging to this category, who were treated at the Sabbatsbergs Small-pox Hospital, all recovered; and the author adds, that of 414 individuals re-vaccinated by him, in the months of February and March, 1857, only three took small-pox, of whom one died.

The value of Dr. Gräh's Reports is so evident as to render comment superfluous.

Anatomy, Descriptive and Surgical. By HENRY GRAY, F.R.S, Lecturer on Anatomy at St. George's Hospital. London: Parker and Son. 1858. Royal 8vo, pp. 750.

A Treatise on the Human Skeleton (including the Joints). By GEORGE MURRAY HUMPHRY, M. B. Cantab., F. R. C. S., &c., &c. Cambridge: Macmillan and Co. 1858. Royal 8vo, pp. 620.

IT would be quite impossible, consistently with the practical scope and object of this Journal, to offer anything like an analytical review of these works. They are both most important and valuable contributions to scientific anatomy, and prove that an increased attention is being bestowed on its study in England; for in the Scotch and Irish schools it has been justly always regarded as the true basis of medicine. This has, perhaps, arisen from the fact that, at least as regards the Dublin school, the facilities afforded to the student of medicine for dis-

section have been, as well under the old system as since the Anatomy Act became law, much greater than in London or in any of the English provincial towns; and we should be sorry indeed to recommend the first of the works we are about to notice did we think it was in any way intended by its author as a substitute for the dissecting-room.

Mr. Gray's book, in excellency of arrangement and completeness of execution, exceeds any work on anatomy hitherto published in the English language, affording a complete view of the structure of the human body, with especial reference to practical surgery. The sections into which it is divided are :— 1. Osteology, illustrated by 98 elaborate wood engravings; 2. Articulations, with 31 illustrations; 3. Muscles and fasciæ, 57 illustrations; 4. Arteries, 29 illustrations; 5. Veins, 11 illustrations; 6. Lymphatics, 6 illustrations; 7. Nervous system, 18 illustrations; 8. Cranial nerves, 12 illustrations; 9. Spinal nerves, 12 illustrations; 10. Organs of sense, 22 illustrations; 11. Organs of digestion and their appendages, 32 illustrations; 12. Organs of circulation, 3 illustrations; 13. Organs of voice and respiration, 8 illustrations; and 14. Urinary and generative organs, 25 illustrations.

Thus the volume constitutes a perfect book of reference for the practitioner, demanding a place in even the most limited library of the physician or surgeon, and a work of necessity for the student to fix in his mind what he has learned by the dissecting knife from the book of nature. In illustration of the author's style and the manner in which he has treated his subject, we shall make two selections: the first, the anatomical description of the supra-renal capsules; and the second, the surgical anatomy of the brachial artery :—

"The supra-renal capsules are usually classified, together with the spleen, thymus, and thyroid, under the head of 'ductless glands,' as they have no excretory duct. They are two small flattened glandular bodies of a yellowish colour, situated at the back part of the abdomen, behind the peritoneum, immediately in front of the upper end of either kidney; hence their name. The right one is somewhat triangular in shape, bearing a resemblance to a cocked hat; the left is more semilunar, and usually larger and higher than the right. They vary in size in different individuals, being sometimes so small as to be scarcely detected; at other times large. They measure from an inch and a quarter to nearly two inches in length, about an inch and a quarter in breadth, and from two to three lines in thickness. In weight they vary from one to two drachms.

"*Relations.* The anterior surface of the right supra-renal capsule is in relation with the under surface of the liver; that of the left, with the pancreas and spleen. The posterior surface rests upon the

crus of the diaphragm, opposite the tenth dorsal vertebra. Their upper thin convex border is directed upwards and inwards. Their lower thick concave border rests upon the upper end of the kidneys, to which they are connected by the common investing areolar tissue. Their inner borders are in relation with the great splanchnic nerves and semilunar ganglia, and lie in contact on the right side with the inferior vena cava, and on the left side with the aorta. The surface of the supra-renal gland is surrounded by areolar tissue containing much fat, and closely invested by a thin fibrous coat, which is difficult to remove, on account of the numerous fibrous and vascular processes which enter the organ through the furrows on its anterior surface and base.

"*Structure.*—On making a perpendicular section, the gland is seen to consist of two substances, external or cortical, and internal medullary.

"The cortical substance forms the chief part of the organ; it is of a deep yellow colour, and consists of narrow columnar masses placed perpendicularly to the surface.

"The medullary substance is soft, pulpy, and of a dark brown or black colour; hence the name, atrabiliary capsules, given to these organs. In its centre is often seen a space formed by the breaking down of its component parts.

"According to the researches of Oesterlen and Mr. Simon, the narrow columnar masses of which the cortical substance is composed measure about $\frac{1}{700}$th of an inch in diameter, and consist of small closed parallel tubes of limitary membrane containing dotted nuclei, together with much granular matter, oil globules, and nucleated cells. According to Ecker, the apparent tubular canals consist of rows of closed vesicles placed endwise, so as to resemble tubes; whilst Kölliker states that these vesicles are merely loculi or spaces in the stroma of the organ, having no limitary membrane, and, from being situated endwise, present the appearance of linear tubes. Nucleated cells exist in large numbers in the supra-renal glands of ruminants, but more sparingly in man and other animals, but the granular matter appears to form their chief constituent; their size varies, and they present the singular peculiarity of undergoing no change when acted upon by most chemical reagents. The columnar masses are surrounded by a close capillary network, which runs parallel with them.

"The medullary substance consists of nuclei and granular matter, uniformly scattered throughout a plexus of of minute veins.

"The arteries supplying the supra-renal glands are numerous and of large size; they are derived from the aorta, the phrenic, and the renal; they subdivide into numerous minute branches previous to entering the substance of the gland.

"The supra-renal vein returns the blood from the medullary venous plexus, and receives several branches from the cortical substance; it opens on the right side into the inferior vena cava, on the left side into the left renal vein.

"The lymphatics terminate in the lumbar glands.

"The nerves are exceedingly numerous; they are derived from the solar and renal plexuses, and, according to Bergmann, from the phrenic and pneumogastric nerves. They have numerous small ganglia developed upon them."

"*Surgical Anatomy of the Brachial Artery.*—Compression of the brachial artery is required in cases of amputation of the arm or fore-arm, in re-section of the elbow-joint, and the removal of tumours; and it will be observed, that it may be effected in almost any part of its course; if pressure is made in the upper part of the limb, it should be directed from within outwards, and if in the lower part, from before backwards, as the artery lies on the inner side of the humerus above, and in front of it below. The most favourable situation is either above or below the insertion of the Coraco-brachialis.

"The application of a ligature to the brachial artery may be required in cases of wounds of the vessel, or of aneurism of the brachial, the radial, ulnar, or interosseous arteries; and this vessel may be secured in any part of its course. The chief guides in determining its position are the surface-markings produced by the inner margin of the Coraco-brachialis and Biceps, the known course of the vessel, and its pulsation, which should be carefully felt for before any operation is performed, as the vessel occasionally deviates from its usual position in the arm. In whatever situation the operation is performed, great care is necessary on account of the extreme thinness of the parts covering the artery, and the intimate connexion which the vessel has throughout its whole course with important nerves and veins. Sometimes a thin layer of muscular fibre is met with concealing the artery; if such is the case, it must be divided across, in order to expose it.

"In the upper third of the arm the artery may be exposed in the following manner. The patient being placed horizontally upon a table, the affected limb should be raised from the side, and the hand supinated. An incision about two inches in length should be made on the ulnar side of the Coraco-brachialis muscle, and the subjacent fascia cautiously divided so as to avoid wounding the internal cutaneous nerve or basilic vein, which sometimes runs on the surface of the artery as high as the axilla. The fascia having been divided, it should be remembered that the ulnar and internal cutaneous nerves lie on the inner side of the artery, the median on the outer side, the latter nerve being occasionally superficial to the artery in this situation, and that the venæ comites are also in relation with the vessel, one on either side. These being carefully separated, the aneurism needle should be passed around the artery from the ulnar to the radial side.

"If two arteries are present in the arm in consequence of a high division, they are usually placed side by side; and if they are exposed in an operation, the surgeon should endeavour to ascertain, by alternately pressing on one or the other vessel, which of the two

communicates with the wound or aneurism, when a ligature may be applied accordingly; or if pulsation or hemorrhage ceases only when both vessels are compressed, both vessels may be tied, as it may be concluded that the two communicate above the seat of disease or are reunited.

"It should also be remembered that two arteries may be present in the arm in a case of high division, and that one of these may be found along the inner intermuscular septum, in a line towards the inner condyle of the humerus, or in its usual position, but deeply placed, beneath the common trunk: a knowledge of these facts will at once suggest the precautions necessary in every case, and indicate the necessary measure to be adopted when met with.

"In the middle of the arm the brachial artery may be exposed by making an incision along the inner margin of the Biceps muscle. The fore-arm being bent so as to relax the muscle, it should be drawn slightly aside, and the fascia being carefully divided, the median nerve will be exposed lying upon the artery (sometimes beneath); this being drawn inwards and the muscle outwards, the artery should be separated from its accompanying veins and secured. In this situation the inferior profunda may be mistaken for the main trunk, especially if enlarged, from the collateral circulation having become established; this may be avoided by directing the incision externally towards the Biceps, rather than inwards or backwards towards the Triceps.

"The lower part of the brachial artery is of extreme interest in a surgical point of view, on account of the relation which it bears to those veins most commonly opened in venesection. Of these vessels, the median basilic is the largest and most prominent, and, consequently, the one usually selected for the operation. It should be remembered that this vein runs parallel with the brachial artery, from which it is separated by the bicipital fascia, and that in no case should this vessel be selected for the operation, except in a part which is not in contact with the artery."

It has been objected to Mr. Gray's book by one of our most esteemed contemporaries, that the author has not rendered justice to anatomical discoverers, in that he does not ascribe to each by name the merit which is undoubtedly his due. Now in this condemnation we cannot at all agree; any work on a demonstrative subject, such as anatomy, can, in the present age, be nothing but a compilation, and the chief, if not the only merit which a writer on it can claim, is as to the manner in which he arranges his materials and the language he employs. To interlard his sentences with constant references to authorities would but mar the context, and, spoiling the style, render its reading tiresome and troublesome.

The work of Mr. Humphry, though more limited in its

object than that of Mr. Gray, being devoted to only a single division of the anatomy of the human body, is of a more ambitious character, and must rank higher from being of a much more scientific nature. It does not consist of a mere detailed account of *dry* bones; but a beautifully written description of their development, growth, structure, union by joints, position in the human economy, varieties in the lower animals, and uses in standing, walking, and running, leads gradually and pleasantly on to the last most interesting chapter, "On the Homology of the Skeleton."

"To hear the study of the human skeleton," says Mr. Humphry in his preface, "complained of as dry and tedious, is always, to me, a matter of regret. It really may be, and ought to be, one of the most interesting of studies. To the practical surgeon it is essential. To the philosophical anatomist the human skeleton is most instructive, being related to the intelligent will of man on the one hand, and to the various members of the animal kingdom on the other. It is, moreover, the framework of nature's masterpiece, the most perfect piece of mechanism, replete with fearful and wonderful manifestations of creative skill. The contemplation of such a work is one of the noblest exercises of the mind, not merely on account of the many physical and other problems which it suggests, but, still more, because it tends to give additional force to the conviction, derived from more direct revelation, of the infinite wisdom, power, and goodness of the Creator."

As regards the homology of the several parts of the skeleton Mr. Humphry dissents from the views of Professor Owen, now commonly adopted in our schools, and he promises to state his reasons more at length in an account of the "Morphology and Homology of the Vertebrate Skeleton," to be published hereafter as an Appendix to this volume. In the meantime he gives the following general outline of his views:—

Centra.

"The Bodies of the vertebræ, arranged in front of one another, and connected, in most instances, by fibro-cartilage, form the centre, or axis, of the skeleton, which is interposed between the cerebro-spinal nervous axis above, and the circulating, digestive, and respiratory viscera, beneath; they are, therefore, well named the *centra*. They are in close relation to, and are developed in close connexion with, the ganglia which form the primitive constituents of the cerebro-spinal neural axis; each centrum corresponding, apparently, with a pair of these ganglia. Their shape usually approximates to that of a sphere; but sometimes deviates from it very considerably. One of the modifications is caused by out-growths from the superior or inferior surface of the centrum. Those in the former situation—such as the posterior clinoid processes of the sphenoid bone, and the crista galli of the ethmoid—may be called *Supra-central;* those

Supra- and sub-central growths.

upon the under surface—such as the prominences on the forepart of the cervical vertebræ, and the rostrum or azygos process of the sphenoid—may be called *Sub-central.* They are usually mere outgrowths; but it appears that, when large, they may be developed from separate osseous nuclei; and it is probable that the inferior arch of the atlas is of this nature.

Neural arches.

"The neural axis lies upon the upper surface of the centra, enclosed in a tube which is formed by a series of bony arches called *neural Arches.* Each of the neural arches rests by a pedicle, on either side, upon one of the centra, and, with it, constitutes a complete transverse segment of the *neural Tube;* and each neural arch is composed of lateral portions, or alæ—the *neural Alæ*—which spring from the sides of the centrum, and which may be confluent in the middle line, above, or may be united by one, or two, mesial portions—the *neural Spines.* In the spinal column the neural spines are often absent, or are merely small osseous nuclei formed at the tip of the process which runs from the point of union of the neural alæ; in the cranium, however, they form an important part of the covering of the brain.

Neural spines.

Intervertebral foramina.

"Between the pedicles of the neural alæ of contiguous vertebræ are spaces—the *Intervertebral foramina*—which transmit vessels and nerves to and from the neural canal. In the cranium the nerves and vessels, which are more numerous than in the spine, pass not only through the intervertebral foramina, but through perforations in the pedicles.

Articulating processes.

"Processes grow out from the neural alæ, on either side, in front and behind, which come into contact with, and are jointed with, corresponding processes of the contiguous vertebræ—these are the *Articulating processes.* In the cranium, where the edges of the adjacent alæ are united in nearly their whole length, special articulating processes are not required; and their representatives can be distinguished only in the cartilaginous jugular facets of the occipital bones, and, perhaps, in the so-called spinous processes of the sphenoid bone.

Transverse processes.

"*Transverse processes* also grow out from the neural alæ, one or two on either side. When there are two, as in the cervical vertebræ, they are usually placed one above the other, the lower one springing from near the inferior extremity of the pedicle, close to the attachment to the centrum; and they enclose between them a space, which contains an artery. This space may be closed on the distal side by the confluence of the two transverse processes; it is thus converted into a foramen—the *transverse foramen.*

Ribs.

"Or, a separate piece of bone may be appended to the transverse processes on either side, to one or both as the case may be. It may become anchylosed with them, as in 7th cervical vertebra; or it may remain separate, as in the dorsal region. It may be called the *Transverse Ala.* Where it remains separate it is most commonly inclined downwards, on the side of the visceral

cavity; and, contributing to form the lateral wall of that cavity, it is called a rib. In some parts of the cranium, however, where the size of the neural cavity preponderates over that of the visceral, it is directed upwards, and assists the neural arches to form the covering of the brain. Under these circumstances it may be appended, directly, to the neural ala, without the intervention of the transverse process.

"The so-called 'viscera of organic life' are placed beneath the vertebral centra, and bear a relation to them similar to that of the brain and spinal cord, but not nearly so intimate. They are also, more or less completely, enclosed in an osseous tube, which is formed upon the inferior surface of the vertebral axis. This may be called the *Visceral Tube*, to distinguish it from the neural tube; with which it corresponds, inasmuch as it is formed of a series of arches—the *Visceral arches*—which descend from the sides of the centra, and unite in the middle line, below.

Visceral tube.

Visceral arches.

"Each visceral arch is an appendage to one of the centra; but the several visceral arches do not preserve their relations with their respective centra quite so regularly as do the neural arches; indeed it is sometimes difficult to tell to which of the centra a particular visceral arch belongs. They are subject also to considerable varieties, in accordance with the variations of the number, size, and shape of the organs they have to protect, and the different uses to which they are made subservient.

"The most regular components of the visceral arches are the *Hæmal parts* of the vertebræ. They correspond, apparently, with the neural parts, being formed, like them, of lateral portions, or *alæ*, one on either side, which are approximated at their distal extremities, and are united in the mesial line, either directly, or by the intervention of one or more separate portions—the hæmal *Spines*. In the caudal region of many animals the hæmal elements are applied, directly, to the under surface of the centra, forming with them the whole of the visceral tube, which, in that region, contains only the caudal vessels: hence the name 'Hæmal.' Commonly, however, for the purpose of enlarging the visceral tube, and of giving more space to the various organs contained in it, the hæmal elements are removed to a considerable distance from the centra, and are appended to the extremities of the transverse alæ, or ribs, which, as we have seen, are bent downwards to assist in forming the visceral arches. In the parts of the cranium in which the transverse alæ are devoted to the construction of the neural, instead of the visceral, arches, the hæmal elements are still appended to them.

Hæmal elements.

"An important office performed by the hæmal parts of the vertebræ at the anterior and posterior regions of the trunk, is to afford a basis for the *Limbs*, which, it appears to me, should be regarded as appendages to the hæmal, and not to the pleural, components of the skeleton."

The limbs.

The volume is illustrated by sixty beautifully executed lithographs, which the author informs us were drawn upon stone, from nature, by his wife, and which are alike creditable to her head and her hand.

We look upon the publication of these two books as a great addition to English medical literature, whether we regard their composition, or the style in which they are got out, and we warmly commend them to the notice of our readers.

Étude sur le Développement et la Structure des Dents Humaines. Par Émile Magitot, Docteur en Médecine de la Faculté de Paris, ancient Élève des Hôpitaux et de l'École Pratique. Accompagnée de deux Planches gravées. Paris: J.-B. Baillière et Fils. 1858. 4to, pp. 112.

We shall best explain the nature and arrangement of this work by giving the author's threefold division of his subject.

"The first includes the study of the dental follicle in all its component parts, considered previously to the commencement of the production of the hard substance of the tooth. It is divided into two chapters: the first treating of the development of this follicle; the second, of its structure.

"The second contains an examination of the phenomena of the development of the dental substances properly so called, ivory, enamel, cement, in the follicle already investigated.

"The third part, lastly, consists of an inquiry into the structure of the adult tooth, that is to say, into the definitive arrangement of the elements, the mode of evolution of which has been previously studied.

"In adopting the arrangement and division of the subject just described, I have examined the component tissues of the teeth, under three different and successive aspects:—

"1. During the embryonic period, in the state of a formative bulb;

"2. In the period of active development, when the dental elements are being formed and arranged;

"3. In the adult period, when the tooth is fully formed."

M. Magitot's work exhibits great research; it is carefully executed, and well brought out. The subject is fully illustrated by means of two very good plates, containing seven figures each.

Über die Veränderungen der Gewebe durch Brand. Von Hermann Demme in Bern. Frankfurt A.M.: Meidinger, Sohn, & Comp. 1857. 8vo, pp. 102.

On the Changes of Tissues by Mortification. With 24 original designs, engraved on steel.

Under the modest pretension of a contribution to pathological histology, we welcome from the son of the well-known Professor Demme, of Berne, a work on the microscopical examination of the alterations which animal tissues, especially those of the human body, undergo when attacked by mortification. This work, which supplies a real desideratum in science, comprises the results contained in a successful prize essay, together with the author's subsequent researches on the subject. It is divided into two parts. In the first he describes the new formations found in mortified parts, which either did not exist in the normal tissues, or are modifications of existing organs. Their enumeration is pretty extensive, comprising:—

Fatty matters;

The various pigments which colour the gangrenous parts, many of which are evidently modifications of hematoisine.

Crystalline products, such as ammonio-phosphate of magnesia, stearine, uric acid, ureate of ammonia, and others, which, to the number of fourteen, he finds in these devitalized parts.

This part of the work is concluded by a description of the various algæ and fungi, which likewise make their appearance there in goodly numbers, as he enumerates seven species of cryptogamic vegetables, and nearly as many species of infusoria.

One of the author's most interesting remarks relates to the existence of the so-called gangrene corpuscles (corpuscula gangrenosa) first noticed by Valentin. He describes them as consisting of minute particles which are non-crystalline, of various irregular forms, triangular, quadrangular, cruciform, &c. When under a magnifying power of 35 diameters, they are imperceptible, but when magnified to 75 diameters they appear as innumerable fine points. They have no cell structure, and are easily distinguished from fine fatty granules by their being unaffected by alcohol and ether. He ascribes these corpuscles to a modification of hematoisine. In a case of gangrene of the tongue from ligature, he found them to exist two days after the operation.

The second part of the work H. Demme devotes to the observation of the gangrenous tissues, comprising the blood and plastic exudations. Each tissue is treated of in turn with

much care and minuteness. In the examinations on the nervous system two cases of gangrene of the brain are very carefully described.

The most novel part of the work is the examination of the peripheric nerves. Most of our readers must be aware of the light which has of late been thrown by physiology upon the alterations occurring in nerves when separated from their central organs. The separated end becoming, as it were, dead among the tissues, undergoes very considerable changes in the structure of its elementary fibres, whose contents, after first breaking up into clumps, become granulated, as if they had undergone fatty degeneration. An English physiologist, Dr. A. Waller, of Birmingham, has applied this fact as a general means of investigating the nervous system.

These alterations of the nerve fibres are so invariable and progressive, that by their means microscopic examination of a divided nerve enables us to ascertain for how long a period the nerve has remained dead in the animal economy. It was, therefore, a matter of much interest to ascertain exactly what alterations take place in the structure of nerve fibres in gangrenous parts.

H. Demme's observations, although they have advanced our knowledge, still leave much to be desired on this subject. In gangrenous parts he discovers two distinct kinds of alterations of nerve-fibres. In the first they are merely such as we commonly meet with in nerves that have been ill-prepared for the microscope. Thus, the normal transparent pulp of the nerve-tubes appears cloudy, and, as it were, coagulated, and the continuity occasionally interrupted. This is the most frequent alteration discovered by the author in the nerves of mortified parts. In other cases he has observed what is usually termed the fatty disorganization of nerves, which we have above alluded to. We will not enter here upon the question as to the specific nature of the alterations of the nerve pulp, but only remark that this is still a debated point among physiologists, some regarding it as a fatty disorganization, while others (as Robin and Waller) consider it to be merely the result of the disaggregation of the pulp in consequence of the commencing absorption of its constituent parts, which eliminates the fatty and proteic elements much more slowly than the rest.

We regret to observe that H. Demme makes no allusion to the researches published in this country on these alterations of the nerve fibres. He will find them, accompanied by others in a less advanced stage, figured and described by Dr. Waller in

the Philosophical Transactions of the Royal Society[a], copies of which the Society so liberally supplies the University of Berne with, amongst others, and which for any future edition it will be desirable for H. Demme to consult. He will also find in the "Comptes rendus de l'Académie des Sciences, Paris"[b], a general application of these alterations of nervous tissue to the investigation of the nervous system, as well as its application in particular to the sympathetic nerve.

We have no doubt that, after consulting the above-named essays, H. Demme, in any future edition of his excellent work, will alter the following passage:—

"To Schiff belongs the merit of having removed all doubt upon this phenomenon. He has, after numerous experiments, united together the exact signs by which nerves that have for a long period during life been separated from their central organs, can after death be distinguished from all others in the easiest manner possible."

H. Demme gives an interesting case of compound fracture of the tibia and fibula, where the foot was nearly torn from the leg, which mortified in twenty-four hours. On the fourth day mortification extended to the whole limb, and ten days afterwards death ensued. On examining the femoral and sciatic nerves and ramifications, it was found that where softening of the parts around them existed, the nerve tubes were altered in the same manner as above described in mortified parts; while in the intermediate spaces, where the nerves were no longer in contact with gangrenous matter, their primitive fibres had undergone various stages of fatty disorganization. The difference in the two cases is evidently owing to the existence of the vital powers of absorption in these last-mentioned parts, while in the former no such influence was exerted.

The work is illustrated by engravings from excellent drawings made by the author.

[a] Philosophical Transactions, Part ii., 1850; Journal of Medicine, July, 1852; and Paget's Lectures on Surgical Pathology, vol. i. page 144.

[b] Comptes rendus de l'Académie des Sciences, Novembre, 1851, vol. xxxiii., page 606; et Nouvelle Methode Anatomique pour l'Investigation du Systéme Nerveux pendant la vie, et apres la mort. Bonn, 1852.

A Treatise on the Pathology of the Urine, including a complete Guide to its Analysis. By J. L. W. THUDICHUM, M. D., &c. &c. With seven Plates. London: John Churchill. 1858. 8vo, pp. 429.

THE attention paid of late years to the more accurate study of the pathology of the urine, and of urinary deposits, would argue a growing conviction amongst medical men of the importance of such studies in elucidating the phenomena, in facilitating the diagnosis, and in improving the treatment of disease. But were it to induce us to conclude that this conviction is but a growth of modern times, it would lead us into committing a grave injustice to the memory and reputation of the more celebrated authors, even of antiquity. In all their works we frequently find reference made to the more marked of the physical changes occurring in this secretion, and have just reason to admire the shrewdness of the diagnosis founded on such appearances. Nor can we be surprised at this, for what can be more reasonable than that these phenomena should attract the attention of even the most superficial observer, and impress him with their significance and importance? The amount of their chemical knowledge, however, was a sufficient barrier to their pushing, to anything approaching their just value, the indications to be derived from this source, and at the present day we can but wonder at the sagacity of remarks founded on such unsatisfactory data as were at the command of the older authors.

In despite of all these difficulties, however, we find due respect paid to the importance of studying the urine to enable the practitioner to give a correct prognosis in the treatment of disease. Hippocrates all through his writings makes frequent reference to the changes this fluid may undergo during the progress of different diseases; and lays down, in forcible language, the results that may ensue. In his celebrated "Prognostics," he describes many modifications of this secretion, tries to distinguish between the precipitates it may let fall, and draws particular attention to the importance of studying its various tints; and in this he has been followed by almost every writer who has written since his day. In truth, "Prognostics" appear to have been a favourite study, if we are to judge from the writings of Galen, Rhazes, Prosper Albinus, &c.; and amongst them the prognosis derivable from the urine held a leading position.

Still, chemistry was but a very imperfect science, and it is to this circumstance alone can be attributed the many grave

errors that are to be found in the works of otherwise acute observers, when describing the appropriate treatment for urinary complaints. To this cause alone can we refer the eager credulity with which accounts were received of medicines capable of dissolving urinary calculi. That many painful symptoms were abated by the employment of such medicines cannot be questioned; but that it is more than doubtful that they could act as lithontriptics, in the true sense of the word, is equally unquestionable; still, many were the hours of unavailing toil devoted to the ardently wished-for discovery of this solvent, and many were the announcements of success, and that by men of undoubted professional integrity,—the learned Helvetius triumphantly stating, that under the employment of the *Pareira brava*, calculi of considerable size had disappeared, and that the operation of lithotomy henceforward was to rank with things that had passed away.

That we should no longer waste profitable time in such idle speculation, is due to the laborious exertions of men who have devoted themselves to the elucidation of the chemistry and pathology of the urine, and of urinary deposits. Improvement in this department has kept pace with the advances made in other respect by chemists; and perhaps in no other way has the medical profession become more deeply indebted to the science of chemistry than in the insight that has been afforded into the history of urinary affections by the unremitting exertions of its votaries.

The chemical history of urine has yet to be written, and, when written, its perusal will afford us not only food for amusement, but for instruction. The history itself, for reasons already ascribed, should be of modern date; indeed, it can only commence with the year 1669, when Brandt succeeded in extracting from it phosphorus. Previous to that period, Boyle had made several fruitless efforts to discover and identify the several saline ingredients contained in this fluid; nor can we be surprised at his failure when we take into consideration the infant state of chemical knowledge at the period; nevertheless, he learned from Brandt his process for obtaining phosphorus from urine, and taught it to his laboratory assistant, Hankwitz, who for many years was the sole person who supplied this remarkable elementary substance to the chemists of Europe at large.

As we have already observed, the physical characteristics of urine had been for ages the subject of attentive consideration on the part of each succeeding physician: therefore, we may fairly infer that its putrefactive decomposition could not have

escaped their notice. Lemeri, whose system of chemistry appeared about the end of the seventeenth century, paid particular attention to this subject, and devotes an entire chapter to the consideration of this phenomenon; in this study he was subsequently followed by Margraaf, who also improved Brandt's process for obtaining phosphorus from urine, and at the same time made a great step in the analytical examination of this secretion, by the announcement of the existence in it, and by his description, of the ammonio-phosphate of soda.

Rouelle, however, is the person to whom the profession is undoubtedly indebted for the position that the chemistry of urine now occupies; he it was who first, in 1773, described urea, which substance he extracted from urine by the agency of alcohol, and which he described under the name of the soapy matter; to him also is the merit due of describing hippuric acid, which he did in the year 1784. His efforts, however, to describe the urinary salts were not attended with much greater success than awaited in this respect the previous labours of Boyle.

The illustrious Scheele ably followed the footsteps of Rouelle in this department of chemical science; he first described, in 1776, uric acid, and demonstrated its existence in urinary calculi, and also detected the presence in the urine of phosphate of lime. But the first systematic analysis of urine, an analysis closely approximating the standard of the present day, was furnished to us by Berzelius. His account of the properties of urine, including a description of the action of reagents on this fluid, appeared in the year 1808; and a further description, including its quantitative analysis, was published in the year 1813,—since which period scarcely a year has elapsed without some further addition to this most important, and apparently unexhausted, department of vital chemistry. The description of the composition of urine in health having been once put on something like a satisfactory footing, it was but natural that its pathological history should commence to occupy the attention of every person interested in the study of disease. To ascribe particular merit to one more than another would be as invidious as it would be difficult; each has worthily laboured in his respective department, and the mass of important information hereby collected cannot be too highly valued. Suffice it to say, that many a light has been thrown on a disease otherwise obscure, by an acquaintance with the facts recorded by those most laborious investigators, and that no one can feel himself justified in attempting to prescribe for disease who

has not made himself familiar, at all events, with the leading principles of urinary pathology.

The work before us is divided into a number of chapters, each of which is occupied in the consideration of one or more of the constituents, normal and abnormal, of urine. The first is occupied with the description of the general characters of urine, and almost in the first page we have some observations that, though trite to one who has devoted any attention to the subject, still, from their practical bearing, deserve to be reproduced here:—

"In considering a specimen of urine with regard to its turbidity, great care must be taken in ascertaining whether it was passed in a turbid state, or whether the turbidity and sediment supervened after its emission, or after a lengthened period of rest. The prognosis of many cases is determined by this circumstance, an accurate knowledge of which, not always easily to be acquired, is therefore of practical importance.

"We must guard against considering simple clearness of the urine as a sign that there is nothing wrong in that fluid. Many abnormal substances, the products of disease, are found in clear urine, and many pathological alterations in the quantities of the normal ingredients occur in a limpid fluid."

The tints of urine also are well described, and amongst the abnormal pathological tints we have enumerated a variety of colours, with a table attached, giving much valuable information. One variety of coloured urine, however, has been omitted —the milky. Many cases are on record, in both sexes, where the urine has been passed of a milk-white colour. Caballe enumerates some in which he discovered a notable proportion of caseine, and Bouchardat has published an analysis of a case of milky urine passed by a woman labouring under peritonitis. The observations on the causes that may *accidentally* make urine present an alkaline reaction are of the greatest importance, and as such an indication might give rise to most ungrounded apprehensions, we shall not hesitate to transcribe them here:—

"But the alkaline decomposition of even healthy urine may be favoured by certain circumstances requiring the most scrupulous attention of the practitioner, the neglect of which will make him liable to grave mistakes. Urine which is already in a state of alkaline decomposition, when added even in small quantity to healthy urine, will, like a ferment, induce and hasten the decomposition of the normal fluid. The vessels, therefore, in which the urine is collected, must be washed and scalded with great care; otherwise the small quantities of decomposing urine adhering to their walls may induce fallacious conditions of the fluid collected.

"There are other circumstances which may make the acid urine alkaline in a shorter period than usual. Such are the presence of mucus and pus, which undoubtedly play the part of a ferment in many cases. This may be proved by dividing a specimen of acid urine into two parts, filtering the one immediately, leaving the other as it is, and letting both stand side by side. The filtered urine will often present its original acid reaction, when the portion which has not been filtered is already alkaline. I have found that decanting the clear fluid from the settled cloud of mucus serves the same purpose."

The entire of the remarks on ammoniacal urine are worthy of most attentive study, and will well repay careful perusal. The recommendation to wash out the bladder in such cases with warm water, by means of a syringe and double canula, though not possessing the merit of novelty, also has our heartiest commendation, we having had practical experience of its utility under such circumstances.

In making calculations derivable from experiments on urine, two objects are of primary importance,—first that the urine should be free from accidental impurities; the second, that these calculations should only be admitted that have been founded on the *entire quantity* passed in the twenty-four hours. To the first of these points attention has been frequently called by all systematic writers on the subject, and so important does Dr. Beale justly consider it to be, that in his beautiful series of Plates illustrating Urinary Deposits, &c., the very first three plates are devoted to the "extraneous matters commonly found amongst urinary deposit;" amongst them we find such articles as cats' hair, human hair, various kinds of starchy matter, a tea-leaf, &c. Dr. Thudichum also has not omitted to give us prudent caution on this subject. But Dr. Beale's observations on this point are most important, and to these we refer such of our readers as desire more extensive information on a subject of so practical a bearing.

The average quantity of urine passed in the twenty-four hours by different individuals, is, in our opinion, an unknown quantity—inasmuch as individuals so vary in this respect; we have tried ourselves to fix the amount even in the same individual, and find so many circumstances to regulate it, that we have come to the conclusion that each individual must fix the quantity by his own habit of body. Dr. Thudichum's table fully bears out this statement by its discrepant results; the average found by him to be passed in the twenty-four hours exceeds that generally laid down by English authorities. His statement that "certain regular variations in the hourly quantity of urine are

produced by the cosmic influences of day and night," are entirely at variance with Thompson's elaborate tables on the same subject; and on this point we are more inclined to agree with Thompson than with him; at the same time, we must subscribe to his views on the importance of estimating the value of a quantitative analysis of urine upon the knowledge of the total amount of it discharged in a given time.

The following extract fully shows the practical value of estimating accurately the quantity of urine passed by a patient:—

"It is a fact, derived from general experience, and which may be verified any and every day, *that the quantity of the urine is diminished in all acute febrile diseases*, viz., in exanthemata and zymotic diseases, in low gastric fevers and typhus, in rheumatic fevers, in all inflammatory diseases, such as pneumonia, pleuritis, and bronchitis, and in the inflammatory fevers of tropical climates or miasmatic regions. In all these diseases, and in many more, *a constant diminution of the quantity of urine is accompanied by, and, therefore, pathognomonic of, a constant increase in the intensity of the disorder. When the quantity of urine remains very low* (*below* 800 c.c., 25¾ fl. oz., *per day*) *for any length of time, then we may conclude that the intensity of the disease has not abated. A constant increase in the quantity of the urine, however, is a favourable symptom, and shows that the patient has passed the acme, and that the diseased action is abating* (vide Vogel, loc. cit., p. 226). *During the period of convalescence the quantity of urine becomes normal, or exceeds in some cases the normal quantity.*

"Professor Vogel observed the following case, illustrative of these points. It is the more interesting, as the normal quantity of the urine discharged by the patient during health had been measured for a certain period just before he became ill. He was an attendant in the hospital, and became the subject of typhus fever. During the first three days of the illness, the total quantity of urine in twenty-four hours, amounting to 1800 c.c. (58 fl. oz.) during health, fell gradually to 200 c.c. 6½ fl. oz.): it rose during the next five days regularly up to the normal 1800 c.c. (58 fl. oz.), exceeded the amount soon up to 2200 c.c. (70¾ fl. oz.), and then returned gradually to the usual average quantity.

"*When a disease, acute or chronic, takes a fatal turn, the quantity of urine becomes frequently very low, or remains in a fluctuating low state.* This is the case in all diseases ending with or by exhaustion of the material of the component parts of the body. In cases, however, the fatal termination of which is due to a more sudden interference with the powers of the nervous system, or with the mechanical action of the lungs and heart, the quantity of the urine is not usually very much diminished.

"*The quantity of urine is materially diminished in dropsical diseases, with or without diseased kidneys.* Common practice has made

the amount of urine discharged by such patients the index of their improvement or otherwise, and has made a small quantity of urine, in cases in which the cause of the disorder is not the kidney itself, a therapeutical indication for the administration of diuretics.

"*The quantity of the urine is materially increased in those diseases which we commonly term diabetes.* In these cases, however, as in cases of diseased kidneys, it is necessary to give particular attention to the quality of the urine at the same time, when the distinctions between hydruria, diabetes insipidus, and diabetes mellitus, will become prominent."

We have explicit directions given us for taking the specific gravity of the urine, and the various ways in which this process can be conducted are ably described. Dr. Thudichum (no doubt on strict chemical grounds, correctly) gives the preference to the method of taking the specific gravity by the agency of the air-pump; still we are of opinion that the incorrectly so-called urinometer has, with all its drawbacks, peculiar advantages for bed-side analysis; and, with proper corrections, its indications may be taken as being at all events very near approximations to fact; still, when absolutely correct results are desirable, we must agree in the force of the following remarks:—

"This uncertainty in the results obtained by the gravimetrical method is most likely partly the consequence of the fact, that the various constituents of the solid residue of the urine do not always stand in the same proportion to each other. There is also the error to which the calculation of the temperature makes us liable; further, the error arising from the different densities of the different strata of fluid, as already stated; further, the difficulty of making the scale of the gravimeter sufficiently long to allow of an accurate reading of the level of the urine, which may assume different curves as the different densities of the urine determine a greater or less adhesion to the sides of the vessel and to the stem of the gravimeter. What with having to employ two gravimeters, to compensate and calculate for temperature, and density from depth, and being after all subject to inaccurate reading and the varying proportions of the solids in urine—errors which in the aggregate amount to a difference from reality of from one-tenth to one-fourth,—I must say, that I think the trouble of the methods with the balance and air-pump nearly equalled, and yet the result of a hundred gravimetrical analyses is scientifically and practically not worth one accurate analysis."

All the trouble, however, involved in ascertaining the relative proportions of solid ingredients contained in the urine is amply compensated for by the value of the pathological indications furnished to us by such knowledge. And the more this subject is investigated, the more important, we have no

doubt, will be the results: it will afford us additional data on which, with greater confidence, to found our prognosis, and in many an emergency will yield us good service. Dr. Thudichum's observations on this point express so ably our own views on the subject, that we do not hesitate to transcribe them here:—

"I have now spoken of disease generally; and the remarks made of course apply to the two great classes of disease, acute and chronic, with equal force. But the fluctuations in the amount of solids occurring in both are of a very different prognostic value; for in chronic disease, with a limited amount of solids, a rise in their amount is, as a general rule, a forerunner of considerable and mostly lasting improvement, and indicates that the chemistry of the body is actively employed in renewing the material of the organs and rectifying their functions. To this rule diabetes mellitus alone forms an exception, where a rise in the amount of solids indicates an exacerbation of the disease; and, in this respect, diabetes forms the transition from chronic to acute disease, in which, on the whole, a rise in the amount of solids in the urine during the acme is an unfavourable symptom, indicating an excessive disintegration of the tissues and juices of the body, which must necessarily lead to exhaustion of the material substrata of life. Under all circumstances, a constant and gradual decrease of the amount of solids is as unfavourable a symptom as the decrease of the total quantity of urine discharged, because it indicates the decay of life, and a probable fatal termination of the case.

"The indications of the solids become more varied as soon as they are considered with relation to the amount of other excreta. First, as regards the amount of water by which they are accompanied in the urine, four distinct classes of cases must be borne in mind. If a very small amount of solids is contained in a similar amount of water, we may conclude upon a corresponding amount of anæmia in the individual, always provided that disease of the kidney be not present. In the latter case, a small amount of solids indicates the retention of urea, which may probably end in uræmia.

"If a small amount of solids is contained in a larger or large amount of water, it may possibly be the consequence of excess of drink of some kind. Many cases of hysteria, of anæmia with hysterical symptoms, are accompanied by this description of urine. It is the essential symptom of a decided improvement in many cases of hydræmia and dropsy, and when it occurs in a patient with no particular cause to account for it, it has properly been termed *hydruria.* Of this disease Professor Vogel observed a very decided, and, therefore, illustrative case. A man, thirty-five years of age, of a powerful frame, and suffering from rheumatism of the neck, discharged a quantity of urine, amounting to 2983 c.c. (104 fl. oz.) per day in the mean of twenty-four days. But its specific gravity was very low, varying between 1005 and 1012; and the average quantity of solids discharged per day accordingly only amounted to 42 grammes (630

grains). This case was, therefore, clearly one of hydruria. The patient did not seem to suffer under this excessive discharge of fluid.

"When the amount of solids becomes larger, but still remains below the standard of health, and the amount of water is at the same time diminished—in other words, in diseases with a small amount of urine of high specific gravity—the acuteness of the pathological process is clearly indicated. Beginning with the physiological excessive perspiration, there are many pathological conditions, as the sweat of fever, thirst, starvation, diarrhœa, and fever of essential or symptomatic nature, of which this condition of urine is a regular symptom.

"In the fourth class of cases, both the solids and the water of the urine are present in excess. They form a special and specific class of diseases, to which the generic name of diabetes has been given. The genus has, however, only two species, of which the one is distinguished by the presence in the urine of sugar, and, therefore, goes by the name of diabetes mellitus; the other subdivision comprises cases where, in a large amount of water, the increased amount of solids is made up of other solids than sugar, termed diabetes insipidus. In both classes of diabetes, the wear of the body is considerable, and either at intervals, or throughout the course of the disorder, surpasses the amount of nutriment taken in. Diabetes mellitus, from its chemical interest, and the facility with which it may be artificially produced in animals, has been favoured with more attention of late than diabetes insipidus, a disease with which, perhaps, many difficult cases of hysterical anæmia and intractable ailments will have to be classed hereafter. If the total quantity of urine amounts to more than 3000 c.c. (105 fl. oz.) per day, and if the specific gravity shows an excessive amount of solids, ranging from the normal 60 grammes (926 grains) up to 130 grammes (2006 grains), or even more, giving on an average about 80 grammes (1234 grains) per day, we may then with perfect safety ascribe the excessive destruction of the constituents of the body to this excessive secretion, and place to its account a number of symptoms usually following in its train, such as the pale looks and the headach of anæmia, vertigo, the tenderness of certain dorsal vertebræ on pressure, and spasms in the muscles of the neck, such as were observed by Vogel in a marked case of this description."

The pathological importance of determining the quantity of urea present in a given amount of urine is becoming each year more fully appreciated; its value as a means of diagnosis, the important relations it holds to the process of disintegration in the economy entitle it to every consideration. Dr. Thudichum does not enter into the physiological war raging between Liebig and Bischoff on the one side, and Lehman, Bidder, and Schmidt on the other, as to the origin of urea; he does not take upon himself to act as umpire on the *quæstio vexata* whether

it be a product of the metamorphosis of the nitrogenous tissues, or be dependent for its formation on the quantity of albuminous food ingested, or the consumption of already formed albuminous tissue; nor does he take upon himself to decide whether it be formed "in the blood or the blood corpuscles, or in the muscles;" but he does fully recognise the great importance of correctly estimating its relative amount, and attributing to it its just pathological value. With this object in view, he gives at length three of the most important processes at present in use for the exact determination of the quantity of urea present in a given sample of urine—Liebig's, Bunsen's, and Davy's; a briefer notice is given also of the methods pursued by Miller, Heintz, and Ragsky. He enters fully into the three processes which he has selected as being peculiarly appropriate for determining this most important point; and for ourselves we must say that, for clinical purposes, that suggested by Dr. Davy, in consequence of its greater facility of application, possesses the greatest value. The results procurable by Liebig's method, and by his own, have been contrasted by Dr. Davy in his valuable paper in the Philosophical Magazine for June, 1854, and the difference may be stated to be inappreciable.

The quantity of urea secreted in the twenty-four hours has been stated by our author at from thirty to forty grammes; this corresponds with the statements on the same subject by Rummel, Bischoff, and Scherer. It has been established that the quantity of urea will vary, not only with the quantity, but with the quality of the food ingested,—fat, alcohol, tea, and coffee diminishing, whilst salt and gelatine increase, the quantity of urea eliminated; active bodily exercise also has a similar tendency,—the action of free imbibition of water in increasing or diminishing the quantity of urea secreted, being still a mooted question. On these points Dr. Thudichum has not given us as full an account of the literature of the subject as its importance demands,—a remark that will also apply to his observations on the pathological indications of urea. The difficult question of uræmia is intimately connected with this subject, and merits more consideration than he seems inclined to pay it. The valuable observations of Frerichs or of Scholthin on this subject are not even alluded to, and this the more astonishes us when we perceive, by the elaborate directions he has given for its estimate, the value which he must, in common with all other pathologists, set on it as a semeiological indication.

The more fully to understand the question alluded to, we

must be allowed to remind our readers of the change which urea is supposed to undergo in the system, when unduly retained there. By absorbing two atoms of water, urea is supposed to be changed into carbonic acid and ammonia, the latter of which is eliminated principally by the lungs. This equation explains the reaction:—

$$C_2 H_4 N_2 O_2 + 2 HO = 2 (NH_3 + CO_2).$$

Now, Frerichs has made a series of experiments (by injecting ammonia into the veins) to prove that it is by its formation and by its deleterious effects that the retention of urea proves noxious. He has also demonstrated under such circumstances, that ammonia is exhaled. Scholthin has taken up this subject with vigour, and holds that the ammoniacal exhalation is but an accidental occurrence, depending on carious teeth, &c.; and alludes to numerous cases of true uremia, in one of which only the presence of ammonia so eliminated could be detected. Now at this moment we have vividly in our recollection, amongst others, one case of *total* suppression of urine, lasting for many days, where the ammonia exhaled was of so palpable a nature as to distress the surrounding attendants. Scholthin, however, does not attempt to invalidate the result of Frerichs' experiment; he only denies its applicability to the question at issue.

In addition to typhus and pneumonia, the diseases mentioned by Dr. Thudichum as those in which the amount of urea is increased, might be enumerated acute tuberculosis, pleuritis, rheumatism, especially when complicated with endocarditis, but above all meningitis. Heller's observations on this point, though not alluded to by our author, are well worthy of attentive perusal by those who desire further information on this most important subject. On the diminution of urea in disease we shall quote Dr. Thudichum's own words, as they are of most practical importance:—

"But in diseases which are chronic and accompanied by impaired nutrition, the amount of urea sinks below the average.

"The lowest amount of urea which I have ever observed to be discharged by a patient during twenty-four hours was 75 grains, in 200 fluid drachms of pale, faintly alkaline urine. This was from a lady suffering from an ovarian tumour, for which she had been salivated several years ago. The growth of the tumour had been arrested since that time, but an anæmiated condition of the body had established itself, against which all treatment was tried in vain.

"So low an amount of urea as 75 or 90 grains in twenty-four hours generally only occurs towards the fatal end of diseases, when

not only the production of urea is very limited, but also the excretory activity of the kidneys begins to become languid.

"The diminution of the quantity of urea may, however, be due to the failure of the excretory activity of the kidneys only, though at the same time an excess may be produced in the system. The excess is then retained in the blood, tissues, and juices of the body, and causes the cachexia commonly known as uræmia, which, if it be true that the products of decomposition of urea, namely, ammonia and carbonic acid, are the *materies et causa morbi*, had better be called ammonæmia. When urea is retained, water is also mostly retained in part, and, by its effusion into the cavities and cellular tissue, causes dropsical disease. Urea may then be detected in most secretions, excretions, exudations, and effusions. It is the same with dropsical effusions from other causes: they contain in solution an amount of urea derived from the blood, but in these cases the impairment of the excretory activity of the kidneys is a secondary symptom, and scarcely ever causes that amount of retention of urea which may lead to uræmia. And even then the kidneys may be stimulated by diuretics or by exercise, or a spontaneous rally of the system may revive their excretory activity, when, with a large amount of urine, a proportionally large quantity of urea, which has been accumulated in the system, may be discharged. The amount of urea will here indicate the amount of depuration effected, just as in retention of urea the smaller amount discharged will allow us to calculate, taking the whole case into consideration, the amount produced, and, by subtraction, the amount retained in the blood."

In Becquerel's classification of morbid urine, the proportion that the urea bears to the other ingredients of the urine fully bears out these views; and Simon gives us in his Chemistry some analyses of a most practical bearing to the same effect, especially showing the effect of venesection in pericarditis, in reducing the amount of the urea to its normal standard.

The chapter on uric acid and its compounds is for many reasons one of the most important in the entire work. The chemical history is most fully given—much more so, in fact, than is necessary for the ordinary purposes of the clinical investigator—but not so for those who desire full information on a most essential portion of urinary pathology. Dr. Thudichum's objections to the employment of hydrochloric acid in testing for uric acid will be recognised as being just by any one familiar with urinary analysis. The author takes Dr. Golding Bird to task in a very severe manner for his theory as to the production of uric acid and the urates in the urine; this in our mind being as important in a physiological as in a pathological view, and as his remarks have carried conviction to our mind, we venture to submit them for the consideration of our readers:—

"Uric acid itself is not soluble in the blood, at least not more than in water; it is only so in combination with a base—ammonia, soda, or lime. Uric acid, when occurring in the blood, is always met with as urate of soda or urate of ammonia. As venous blood is used for the examination (or mixed blood, if taken by cupping), the urate must have been an acid one, since the free carbonic acid, at the temperature of the body or at that of the common air, would not permit any neutral urate to exist, but would withdraw one equivalent of base. In venous blood, therefore, the urate must always be an acid one; and this is important to bear in mind. The question now arises whether the urate must also be an acid one in arterial blood; whether there is a sufficient amount of carbonic acid still present in arterial blood to keep the urate acid; or whether this cause of its acidity no longer exists in arterial blood, or, if present, is in any way neutralized by the presence of oxygen. Though it is not exactly ascertained how much of its carbonic acid the blood loses in its passage through the lungs, yet the data we possess are quite sufficient to put the question at rest. Magendie found in 100 grammes of venous blood 0·078 grammes of carbonic acid, in 100 grammes of arterial blood 0·066 grammes of carbonic acid. The blood in becoming arterial had, therefore, lost only 15·4 per cent. of its carbonic acid. Considering the small amount of uric acid salts which, under normal circumstances, is at any time present in the blood, we are quite justified in the conclusion that the 0·066 grammes of carbonic acid present in 100 grammes of arterial blood are sufficient to keep the urate acid. If it should be urged that there is some ammonia in the blood, which might make the urate neutral, I refer the objector to putrefying urine, in which, notwithstanding a large amount of free ammonia, the urates still remain acid. The urates, wherever we meet with them, are acid salts, and from the very property of the neutral urates to be converted into acid salts by the mere influence of carbonic acid, their occurrence in the economy is impossible. If, therefore, Vogel assumes that neutral urates may occur in the urine (and, as he believes, by the supervening of an acid in the urinary passages, may be transformed into acid salts, which being less soluble form a deposit), he thereby contracts a theoretical debt, which we are sorry to say he will never be able to pay.

"Granting, therefore, that uric acid is already formed in the arterial blood on reaching the kidney; that it can only remain in solution as a urate, and that an acid one; and that after having passed the kidneys it still continues to be an acid urate; where, I ask, are now the difficulties surrounding the explanation of the secretion of uric acid in the form of urates?

"Do we require such theories as that of Dr. Golding Bird, which begins with an impossibility, and, founded upon an opinion of Liebig, long since abandoned, is merely made for the purpose of explaining the acid reaction of urine by the formation of acid phosphates? But it is best to quote his words, which, at p. 84 of his fourth edition, are thus printed in italics:—

"'Uric acid, at the moment of separation from the blood, comes in contact with the double phosphate of soda and ammonia, derived from the food, forms urate of ammonia, evolving phosphoric acid, which thus produces the natural acid reaction of urine.'

"Of course, if uric acid itself is insoluble in the blood, and is only kept dissolved as a urate, mostly the urate of soda, how can it be separated from the blood, except as a urate? And being secreted as a urate, how can it take ammonia from the supposed phosphate? I will even go further back and ask, how could the uric acid, even if it were free, and as such contained in the blood, remain so, if it were throughout the whole course of the circulation in contact with the very phosphate with whose ammonia it is to combine after separation from the blood? These questions I hand over to the further consideration of the reader. Dr. Bird continues:—'If the whole bulk of the urine be to the urate of ammonia formed, not less than about 2701 to 1, the secretion will, at the ordinary temperature of the air, remain clear; but if the bulk of fluid be less, an amorphous deposit of the urate will occur.'

"This is the simple expression of the fact, as we meet it every day, that urates are more soluble in warm than in cold water or urine. But whether they require about 2701 (Dr. Bird), or 2789 (Dr. B. Jones), or 1608 times, or even less, namely, only 1100 to 1200 times their amount of water or urine for solution at a temperature of 77° F. (25° C.) is a matter to be decided only by direct experiment.

"The theory just quoted is incorrect in one more respect; namely, because it assumes that the common deposits of urates are made up of urate of ammonia *only*, since the fact is that they mostly are mixtures of the urates of ammonia, soda, and lime; the urate of soda having in almost all cases the decided preponderance.

"The conclusion of Dr. G. Bird's 'probable explanation of the mode in which uric acid exists in healthy urine,' of which I have quoted two passages, is a reiteration of the theory of Liebig on the acid reaction of urine being produced by the solution of uric acid in the solution of the common or tribasic phosphate of soda, whereby urate of soda is formed on the one hand, and an acid phosphate on the other. The passage runs thus:—

"'On the other hand, if an excess of uric acid be separated by the kidneys, it will act on the phosphate of soda of the double salt, and hence, on cooling, the urine will deposit a crystalline sediment of acid sand, very probably mixed with amorphous urate of ammonia, the latter usually forming a layer above the crystals, which always sink to the bottom of the vessel.'

"Here again we are met by the difficulty, that uric acid, being secreted in the soluble form of a urate, cannot act on the phosphate of soda in the manner suggested. If the action were to take place in the blood, the phosphate could not remain acid, and, therefore, could exert no influence on the urate after secretion. But the most remarkable part of the matter is, that an explanation has been attempted

of a fact which does not exist. If any one has ever seen uric acid fall down in any urine on mere cooling, as it does fall down from its artificial solution in the phosphate, he should not omit to publish the fact. I for one never have met with it, nor have any such facts been brought forward by the originator and propagator of that theory, nor by any one else, as far as I am aware. If uric acid is ever formed in that way, it must redissolve on restoring the temperature of the body to the urine. Thus Dr. Golding Bird has defeated his own theory, in unmistakeable words, in § 120, p. 122.

"*Diagnosis of uric acid deposits.*—When heated in the urine, the uric acid deposit does not dissolve; the crystals merely become opaque. They generally become more distinct from the solution of the urate of ammonia, which is frequently mixed with them, and sometimes completely conceals them from view. Hence the best mode of discovering this deposit is to warm the urine, when turbid from excess of urate of ammonia, in a watch-glass; the acid becomes visible at the bottom of the glass, as soon as the urate dissolves.

"Thus an imaginary fact, linked to reality by mere analogy to an artificial chemical process, has been the subject of explanations, which in improbability were only surpassed by what they were intended to explain, and which found their strongest contradiction in the very fact, the misconceived occurrence of which was the problem to be solved."

Whilst agreeing with Dr. Thudichum as to the number of conditions of the system under which may occur a deposit of urates, we still think that his summary of the pathological value to be set on these deposits is far too brief. In many diseases their appearance in the urine may be looked for as a salutary crisis. To support this view, we can refer, not only to the popular belief on the subject, but to the most practical observations of Becquerel and Schönlein. The value of this and other deposits as a prognostic in fever is also ably put by Dr. Corrigan in his observations on this disease.

We, in common with many other observers we suppose, have met with uric acid deposits, where, from *mechanical* causes, the urine was of so irritating a character as to give rise in its emission to most distressing symptoms; in more than one instance inducing in the patient's own mind suspicions of his being threatened with gonorrhœa. The chapter winds up with some valuable observations on uric acid calculi, including some very interesting suggestions as to the manner in which alternating layers of uric acid and urates may be formed.

The sixth chapter is devoted to the consideration of uræmatine. In it we have a very interesting *resumé* of Professor Vogel's labours on the same subject, and, in connexion with it, a very beautiful plate to illustrate Vogel's table for the de-

termination of the quantity of uræmatine in the urine. The value of this table is fully explained, and it is not Dr. Thudichum's fault should his readers fail in comprehending the indications to be derived from comparisons between the tints in it and in urine. The entire chapter will well repay perusal, but our space will not permit us on this occasion to do more than recommend such perusal to our readers.

Passing over some of the following chapters, we come to that devoted to the means of establishing the presence of albumen in the urine. The existence of albumen in this secretion, though occurring under many circumstances, is not now-a-days looked on invariably as so grave a complication as it used to be formerly; still, it must always, for many reasons, arrest our attention, and excite our interest. It is true, that cases have occurred where albumen has been detected in the urine of persons otherwise in apparent health, and whence after some time it has disappeared without any further lesion; still, if we cannot assign any reason for its presence, we must look on such a case with suspicion. In addition to the usual tests to indicate its presence, Dr. Thudichum strongly recommends a modification originally suggested by Heller. This test is so delicate in every case of application, that we extract it:—

"A small conical glass is filled to two-thirds of its height with urine, and some nitric acid is then allowed to flow along the wall of the glass towards the bottom, where it collects. It mixes with some urine, and forms a clear reddish, mostly dark stratum of fluid. If albumen is present, there will be, lying immediately on the acid, a turbid layer of a precipitate, so strongly distinguished both from the acid and the supernatant urine, that it cannot easily be overlooked. When the amount of albumen is very small, the precipitate sometimes appears only after a few minutes, or becomes more distinct; but, after standing longer, it diffuses in the fluid. But in most cases it appears readily and distinctly."

In his remarks on the pathological indications of albumen, Dr. Thudichum makes allusion to some of the diseases in which it may present itself to our notice, but we for ourselves must say that here again we look on his observations as being entirely of too brief a nature. To dispose of the urinary pathology of the diseases known popularly to us as Bright's disease, in a few lines, can scarcely be regarded as sufficient justice to so interesting a subject. The important relation that the specific gravity of the urine bears to the quantity of the albumen contained in it is not alluded to, and many other points connected with this subject might with advantage have been entered on.

The following passage, bearing on one of the prevailing hobbies of the specialists of the present day, will be found in the chapter on spermatorrhœa, and deserves well the attentive consideration of every one who is opposed to quacks and quackery, under whatsoever guise it may present itself. There can be no doubt of it, but that a large and lucrative practice is derived from the treatment of diseases which, according to Dr. Thudichum, have no existence; and if he could relieve the minds of the victims of this worst kind of charlatanism by demonstrating that their maladies exist but in their own imagination, he will have done good service to a wide section of humanity at large. We believe that the amount of imposition and extortion carried on by the advertising fraternity is incalculable, and that the domestic misery entailed by them exceeds the belief even of the most credulous. He states that—

"Excluding the habitual emissions during sleep of persons affected with spinal disease, an ailment called spermatorrhœa has no existence. The few honest practitioners who believe in the existence of such a disease are the credulous victims of onanists, who find it a strange satisfaction to seek relief and undergo all sorts of treatment for a supposed ailment, the continued cause of which they themselves knowingly are. I will exempt some cases, in which the victims of this vice think that medical treatment might heal them of their bodily passion, as they erroneously believe it to be. I make this statement in consequence of the confession of a young man, which he made to me and the clergyman in the hour of his death. This confession opened my eyes regarding these cases; and I have since that painful experience seen several cases, in which the complaints of spermatorrhœa and nightly involuntary emissions, on close examination, resolved itself into a continuance of guilty acts of the individual."

We must now, most reluctantly, close our remarks on Dr. Thudichum's work on Urine and Urinary Pathology; many more topics remain well worthy of comment and study. To say that it gives us a full history of all that is known of the chemistry of this fluid, is but doing it simple justice, and the pathological remarks are worthy of the reputation its author has already gained in the scientific world. Were we allowed to give a suggestion, it would be this, that in any future edition English weights and measures should be employed, as well as French ones. It is true that he has given us a most admirable table for the conversion of one scale into the other, and, in many instances in the text, has adopted both methods; still, in the hurry of professional avocations, the practitioner will not find time to refer to this scale, and he consequently in

many cases will read numbers that convey no value to his mind. These remarks we make, fully impressed though we are with the superiority of the French system over our own; but as yet it has not been sufficiently adopted amongst our *readers* to render it immaterial which scale be adopted by authors.

We should not have adequately discharged our duty either to the author or our readers, did we not draw attention to the beautiful plates at the commencement of the volume, designed to illustrate his observations; they are worthy of the letter-press, and that is giving them the highest meed of praise at our command.

De L'Alimentation et du Régime. Par JACQUES MOLESCHOTT, traduit de l'Allemand sur la 3e édition, par FERDINAND FLOCON, et revu par l'auteur. Paris: Victor Masson. 1858. 18mo, pp. 287.

The Chemistry of Food and Diet, with a chapter on Food Adulterations, &c.: being a translation of "Lehre der Nahrungs Mittel fur das Volk," by PROFESSOR MOLESCHOTT, of Zurich. By EDWARD BRONNER, M.D. The Chapter on "Food Adulterations," by JOHN SCOFFERN, M.B. London, 1856; pp. 124 (constituting a portion of "Orr's Circle of the Sciences").

THE work of Moleschott on Food and Diet has been for several years the standard popular book in Germany on the subjects of which it treats. Rarely indeed have these matters been dealt with in a manner at once so scientific and agreeable. Herr Moleschott is no mere popular writer, satisfied, like the majority of such authors, with an imperfect acquaintance with the actual state of physiological and chemical knowledge; on the contrary, he has studied profoundly the whole subject, and has committed to the world a more serious and extended work, addressed to the initiated. But the author has known how to adapt himself to the wants of the popular reader, and has comprised in his *resumé* just that which is at the same time the most useful and the most interesting part of his inquiries.

The English translation of an early edition of his popular treatise appeared in "Orr's Circle of the Sciences" in the course of 1856, and obtained considerable notice; but, unhappily, the very best treatises, when forming part of a long serial work, are apt to be forgotten amid many of smaller value, and rarely

attract the attention which their intrinsic excellence would command if standing on their own separate merits. This translation does not appear to have been grateful to the author, as he very pointedly disclaims all co-operation with it, in some prefatory observations of a complimentary nature relative to his French translator, M. Flocon.

The book is essentially inscribed to the people,—but in a preliminary letter it is also especially dedicated to the author's father, in a few sentences of charming grace, and filled with filial gratitude. The dedication is the more interesting as the death of Moleschott the elder, during the printing of the third German edition, served but to add another and more painful souvenir to the early pages of the son's production.

It is essentially didactic in form, without the slightest tinge of the controversial spirit. The authors who have contributed to the several branches of his subject are not alluded to by name; Herr Moleschott has exercised a sound discretion in adopting this course. Nothing so much repels the lay reader of a popular treatise, as an elaborate display of authorities—more often so displayed to feed a vulgar vanity of erudition than to serve any really useful purpose. "For the people," as is justly observed by the author, "the value of the individual disappears; and the most glorious recompense of the *savant* is to see his discovery become the property and the interest of all."

In the first book a solid foundation is laid for its subsequent portions, in a condensed and extremely well digested account of the general physiology of assimilation. Its different sections take up in order the formation of blood; the alimentary principles; digestion; the chyle; the blood; the formation of the solid parts of the human body; secretions; excretions;[a] hunger and thirst. There is but little in this part of the work to challenge the special notice of the scientific reader, although admirably designed for the instruction of the people. The knowledge of the author shines out in every sentence, we had almost said in every word, and only those well versed in the present condition of the physiology of digestion and assimilation can appreciate at its proper value the excellence of his summary of the leading facts of the science.

The first sentence of the introduction claims a no undue importance for food in animal life, and is well calculated to arrest the eye of the reader:—"Food has changed the wild cat

[a] In the Table of Contents of the English translation this word has been unfortunately miscalled "concretion."

into the domestic cat. The carnivorous animal, with short intestine, has become, by long-continued habit, a totally different being, with a long intestinal canal and capable of digesting vegetables, with which it could not be fed in a state of nature." Moleschott pleasantly draws attention to the salutary animation produced by tea, the agitation often set up by too strong coffee, and observes upon the profound depression of vital power resulting from deficient food. How much, he says, of noble poetry has obtained its inspiration from generous wine; or, we may add, from well-mixed whiskey, such as Christopher North both praised and drank. The time has long since past when the mind was believed to be absolutely independent of matter; and the time will soon pass away for ever when it is considered a humiliation for it to be dependent upon the constitution of things around us. Rather, as the author eloquently declares, "we ought to endeavour to enlighten ourselves upon that necessary series of links between eating and drinking, and the formation now of bones,—now of muscles,—now of brain. The noblest privilege of our brain is the power to comprehend this transformation; and it is by its powerful development that the human intelligence can arrive at that degree of illumination at which it will honour the matter which produces these organs, and when it will see, in the necessity of eating to live, no humiliating dependence. That connected chain of relations by which our body lives again in the adornments of the garden—and the flower of the field in the organ of our thought—has nothing in itself to revolt us." We commend these thoughts to Mr. Hayward, when he brings out a new edition of his witty essay on the "Art of Dining." The pleasant mock gravity with which he has treated so gracefully the subject of eating will not suffer by their addition; while they may, perhaps, give a zest to that excellent dish of light reading, which no other condiment can efficiently supply.

We subjoin the following account of secretion in its general relations, as furnishing a good specimen of the author's mode of description:—"All the functions which are connected with the development of the solid parts of our body are designated by the physician as nutrition, properly so called. But we must not regard all the substances which transude from the blood through the capillaries, as aiding in the manufacture of the solid structures. A very large part of the transuded materials is not a nutritive juice for the tissues, but remains in the liquid form, which, extracted from the blood, or prepared at its expense by special organs, is collected in reservoirs, and poured into the cavities of the body, or expelled. Often these reser-

voirs are only canals, which are termed the excretory conduits of organs, while these latter themselves are named glands. In other cases these modes of issue conduct the liquid, before being finally carried away, into cavities of one form or another, and which are denominated vesicles or bladders. Thus there is a seminal vesicle, a gall-bladder, and the urinary bladder. The liquids extracted from the blood, and collected by the glands, have, in part, a special and immediate utility in the body, insomuch as they aid in the functions of reproduction and digestion ; all those fluids, which co-operate in these two functions, so important as regards both the individual and the species, are united together under the name of secretions. In all secreted fluids there is a quantity of water more or less great; water is the principal condition of all transudation."

In his discussion of the various fluids engaged in the digestive process, the author states that both the mucus poured out from the buccal membrane and the proper salivary fluid secreted by the salivary glands, possess an alkaline reaction; and yet, that the liquids of the mouth often give an acid reaction. We believe this latter statement to require some qualification, for the general belief among physicians tends rather to the conclusion that when this important fluid exhibits a distinctly acid reaction, the subject is not in a state of health. It is probable that the presence of particles of food for a lengthened period in the mouth may affect the reaction of the saliva. But this subject requires further investigation, and particularly in reference to the difficult question of the cause of dental caries.

A succinct but thoroughly intelligible description is given of the function of the lungs, quite freed from the hypothetical treatment to which the respiratory function has been generally subjected of late days by chemists, but presenting only what may fairly be termed positive facts. It is remarked that just as the ovum offers to us a transition which connects the secretions with the tissues, the lungs present an organ whose function takes a middle place between assimilation and excretion. The excrementitious substances which it abandons are carbonic acid and water. "In exchange it receives oxygen. Without oxygen, there is no arterial blood; without arterial blood, there is no nutrition. If this is wanting, all the functions of all the tissues are deranged. The muscles can no longer contract, the nerves lose their irritability, the operations of the brain are disturbed, if the blood ceases to furnish to these organs their particular combination. All that depends on the provision of oxygen."

In the fifth chapter, on "hunger and thirst," Moleschott

shows how vain was the task of the cruel miser in the fable, who wished his horse to live on nothing a day, and find himself in bone and sinew wherewith to labour; and who imagined he had almost accomplished his task, when the hapless beast fell into the knacker's hands. When the total amount of excretions diminishes, the weight of the aliments which we take diminishes also. If this statement could be reversed,—if it were true that a diminution of excretion corresponded exactly with a diminution of food, we might learn to walk on without aliment, and the moral of the fable might have been changed. But it is not so. If we abstain completely from food and drink, we, nevertheless, exhale carbonic acid and water; the evacuations of urine and excrements take place after, as before, such abstinence. The hair grows, the nails elongate, sweat and mucus continually take away from the body its essential substance. All this, and much more to the same purport, are admirably laid down by the author, and the whole is summed up by the just observation that alimentation may be correctly styled a process of reparation.

In the sections on the results of want of food, the powers of the author are favourably displayed. He draws attention to the diminution in weight of the different parts of the body, and remarks on the very small effect produced on the bulk of the nervous system by starvation—in accordance with the well-known researches of Chossat. He states that probably the comparative maintenance of the weight of the nervous system is owing to its having fed upon the fatty and albuminous parts of the body itself, rather than to its remaining in an actual *status quo*, while other structures are undergoing so remarkable a diminution. This opinion appears to us well based.

M. Moleschott concludes this part of his essay with some general reflections on the effects of starvation, written in a spirit at once of sound philosophy and genuine philanthropy. The French translation here presents to the reader a goodly number of very significant stars, indicative of a chasm, and painfully reminding us of a règime which permits not the telling even of scientific truths, when they are tinged with the doctrines of progress; or hint, however obliquely, at political eventualities. Out of the following extract from the English translation, one sentence only can be found in M. Flocon's book. In fact, these sentences contain a singularly exact and tersely expressed view of the social doctrines of which Louis Blanc, the well-known enemy of Louis Napoleon, is the most able and honest of living advocates:—

"There is another instinct by which the vigour of the mind is vanquished in a more melancholy way—hunger desolates both head and heart. Though the craving for nutriment may be lessened to a surprising degree during mental exertion, there exists nothing more hostile to the cheerfulness of an active, thoughtful mind than the deprivation of liquid and solid food. To the starving man every pressure becomes an intolerable burthen: for this reason hunger has effected more revolutions than the ambition of disaffected subjects. It is not, then, the dictate of cupidity, or the claim of idleness, which prompts the belief *in a natural human right to work and food*[a],—a motive to the force of which Christian charity itself must, sooner or later, give way.

"All honour, indeed, to the charity which in so many noble-minded people anticipates and mitigates the sternness of law. I am, indeed, far from retaliating the contumacious censure with which the assertors of this right are often met by their opponents. It is the part of wisdom and comprehensive tolerance fairly to balance the merits of all opinions, and to do justice to their respective beneficial results. So much the more, however, do I consider it a duty to oppose the cogent power of convincing facts, to the rigorous sentence which makes a human right dependent upon a human grace."

The second book sets out with a definition of alimentary principles and nutriment. The author shows that as hunger and thirst are the sensations which announce to the brain, through the medium of the nerves, the impoverishment of the blood, popular language calls every substance a nutriment which is able to quench hunger and thirst; while the scientific definition of nutriment results rather from a consideration of the cause of these sensations. But it is necessary to draw a distinction between "alimentary principles" and aliments, for while all the former may be divided into the three orders of inorganic, organic without nitrogen, and organic with nitrogen, aliments, on the other hand, containing various alimentary principles, cannot be classified in a similar manner on any defined chemical basis. In this difficulty, Herr Moleschott prefers the common division of solid food, liquid food, and condiments. The inherent difficulties of any classification, even among such familiar objects, are sufficiently apparent at a glance of the pages in which they are described. The author himself remarks on the narrow line of demarcation between solid and liquid food, and upon the important consideration standing at the basis of the matter, that there is only one alimentary principle, namely, water, which affects that condition of the blood which brings on thirst; and that, as water forms

[a] The italics are our own.

a very large proportion of all solid matters, so there is also no liquid ingested by man which does not include a more or less considerable amount of solid matter. But this is not the only stumbling-block, for under the head of condiments we find mentioned sugar, butter, and cheese. There are, undoubtedly, good reasons for placing those substances in this position, for their common employment suggests to us the idea of a condiment rather than of a food, and the author has not failed to bestow due attention on the principles involved in them, in other sections. As "tests of digestibility," we are told that the more easily these alimentary principles are dissolved in the digestive fluids, and transformed into the constituents of the blood, the greater is their digestibility: for digestion consists, not in the solution only of bodies, but also in their transmutation into the essential constituents of the blood. Both conditions are of equal importance. Again, the "tests of *nutritiveness* (a quality of food so often confounded with digestibility) comprise this latter, the quantity and the proportions of the alimentary principles contained in any given article. Digestibility merely expresses the *rapidity* with which *the alimentary principles* of the ingested material are transformed into constituents of the blood; nutritiveness indicates the *quantity* of alimentary principles conveyed to the blood by solid or liquid food. Hence it follows, that the idea of digestibility is equally applicable to alimentary principles and to aliments, while we can only speak of nutritive value in reference to these latter.

In the section on "solid food," meat and eggs, the constituents of beef, the effects of cooking, and the differences of taste of various kinds of meat, are briefly mentioned. The observations on cooking are based on the researches of Liebig, and cannot fail to be useful to the careful reader. It is lamentable to think how seriously ignorance of the first principles of the art of cooking affects the national purse and the national health. British cooking, in its present condition, may be not unfairly designated the art whereby we are compelled to eat what should be thrown away, and throw away what should be eaten—surely, the bathos of all possible cooking! It is pleasant, amid the actual experiences of every-day life, to find that a scientific foreigner can find something to praise in the English labourer's roast beef. The author rightly insists, too, that the "portable soup" cakes of England, "which excels all other countries in the preference of its people for a substantial nutriment," are vastly different, and infinitely more valuable than the so-called bouillon-cakes of France, which are, in fact,

gelatine only, while the corresponding cakes of this country are prepared from the broth of meat inspissated by boiling to a jelly. These latter very justly claim for themselves the appellation of "portable soups." The long night of the cook's art seemed recently likely to be illuminated by the energetic and wisely-directed efforts of M. Soyer, but the premature death of that excellent cook and clever writer has thrown a gloom over the kitchen which no living Englishman will probably dispel, and has effected a great rise in the value of bad soup-stock, hard peas, and tough legs of mutton.

There are some interesting observations on the causes of the comparative qualities of flesh, and some of them are new to us. M. Moleschott leans to the belief that the characteristic tastes of the various kinds of flesh are due to the special foods of the animal; and, in confirmation, alludes to the taste of field-fares after eating juniper-berries; and that of some ducks and other aquatic birds which feed on snails, crabs, and fish, and whose flesh resembles train oil. "In Tahiti, too, the swine were fed on fruits only, and while their fat had nothing of the rich taste of European pork, Forster compared their flesh with veal." We are sorry to hear that any process of feeding can impair the flavour of our much-loved porker, for which we confess to the same attachment as Charles Lamb; but console ourselves with the reflection that possibly Forster's stomach might have been disordered by his long voyage, or his porcine reminiscences dimmed by distance. Mayhap, too, the non-existence, at the time, of a calf on the island might have forbidden the opportunity of comparison, so necessary in all inductive investigations. If the Tahiti pork really tastes like veal, we are only sorry that Queen Victoria and Louis Philippe so nearly came to blows over so worthless a quarter. We are quite at a loss to imagine how the author can fancy that our being able to fatten animals at pleasure, by administering to them fat materials, constitutes a scientific demonstration of the dependence of the special quality of flesh upon the food eaten, and we desiderate further proof before we can assent to the statement that "partridges lose their taste if cooped-up and fed like domestic fowls." The fact rather appears to us, that every animal has his own taste, just as he possesses a peculiar smell, or a characteristic form. It is one of the inscrutable mysteries of nature, and designed, perhaps, in part to gratify that love of variety which exists as a genuine physiological condition in man, and possibly in the beasts. Although the wolf seems to have an indiscriminate love for the flesh of kids, lambs, and various other young animals, we have no doubt that he exactly appre-

ciates the peculiar merits of each. At any rate, if he does not, our respect for him is diminished.

The articles on bread and cakes, and the composition of the cerealia, abound in useful information. Unhappily, science and experience are too often divorced, instead of being united in bonds of mutual assistance; though the first indications of improvement in this particular have already appeared in many parts of these countries. Assuredly the earth will not yield its produce to the extent decreed by Providence, until that same intelligence and earnest skilled labour which have effected so much in other industrial arts have thrown their rich treasures into the lap of the farmer. "If we consider that the breeding of cattle and agriculture are among the most ancient pursuits of mankind, we must not be astonished that, in the methods of increasing the produce of both, experience had anticipated science by some thousands of years. In many cases, therefore, nothing was left to the latter but correctly to interpret the results of the former, and explain its principles. Often, too, the scientific explanation of a customary practice has proved the safeguard against those errors, which would have been sure to arise in reasoning from solitary instances experimentally established, without the sure ground of a general principle. If the agriculturist were but ready to acknowledge the services of the chemist, and the latter willing to co-operate with the former, then the power of mind and that of the purse, which have, in fact, but one common object in view, would not divide their forces; but to the obstinate pride of the theorist, who seeks to overthrow all that agricultural experience has established, there is only too often opposed the equally obstinate narrow-mindedness of the agriculturist, who has no faith out of the circle of his experience, or beyond the limit of his fields; the one forgetting that old customs have been confirmed by new reasons, at least as often as they have been laid aside."

After a discussion of "roots," vegetables in general, potatoes, which contain a larger proportion of potash than of all other inorganic constituents put together, and fruits, we arrive at the section on "liquid food." If life is an exchange of substances, liquid is for life an indispensable condition. For the composition and decomposition which give activity to the substances of our body are not possible without water. Thus the simplest of drinks is also the most necessary of all. Our drinking water is the liquid which contains the greatest proportion of nutriment; for is that not a nutriment which conveys to the blood the substance that renders possible the motion of all other

combinations? It is interesting that phosphoric acid never forms a constituent of water; so that this all-important ingredient of our body is exclusively obtained from our solid food[a], and chiefly from the cerealia. The qualities of milk are duly enlarged upon, and the characters of human milk contrasted with those of the corresponding secretion of cows and asses. The author broadly lays down that he considers "the health of the child (at the breast) to constitute the surest and largest experience which enlightens us as to the right composition of the solid and liquid food which man has to take." Few will dispute this dictum, and it were well if mothers appreciated it a little more correctly. Tea, coffee, and chocolate, are then noticed, and their general effects accurately described, though we think the author would have done well to allude, however cursorily, to their effects, as accessory foods diminishing the waste of the body. He states that "at Constantinople the first coffee-houses were called schools of knowledge. Poets and sages assembled there—their discussions and decisions alarmed, more than once, the holders of power. The priests compelled Mourad XI. to see a danger in those assemblies, and the fear of the priests, ever the faithful allies of despotic arrogance, made him close the so-called schools. A similar fate befel, in the seventeenth century, the London coffee-houses,—but a habit grows by prohibition: decrees can reform States, but they are impotent against society. Social revolutions are not arrested by force, because force cannot accomplish them." Moleschott is in error in supposing that coffee-houses, as such, were ever put down either by law or prerogative in this country. That the Liberal leaders often frequented these places of resort is certain —and that they were often arrested in their favourite haunts is equally certain—but coffee-houses were not destroyed by the Government. The truth is, a "social revolution" annihilated their power. It became more fashionable to drink coffee at home than abroad; and the society of well-bred ladies gradually disarmed the fascinating influences of tavern eloquence. Men desirous of talking politics found other vents, and the general spread of newspapers furnished topics for every fireside.

Alcohol, in all its forms, receives a due share of attention, and we are glad to find that the author does not share the too common mania of the time against even the temperate use of stimulants, and does not hesitate to say that we morally vilify a man by refusing him a source of pleasure, to prevent him

[a] Milk is, of course, an exception to this statement.

succumbing to brutal appetites. "The divine who demands a vow of continence does not more revolt against true humanity, than the physician who proscribes alcohol because it can cause drunkenness. Goethe has given to the modern world the beautiful device, 'Think how to live.' He who preaches abstinence from alcohol takes us back to the Christianism of the middle ages, in which the maxim, 'Think how to die,' stifled the fairest flowers of humanity."

The section on "condiments," though brief, is highly interesting, and the remarks therein contained, on sugar, appear to us so important that we transfer them *in extenso* to our pages. "As by salts and acids, so likewise by sugar and honey, is the quantity of the digestive juices increased, and the digestion promoted. And the sugar, while being digested, enriches the gastric juice with a substance which assists in dissolving the aliments; for the sugar, on coming into contact with the saliva, has been partly transformed into lactic acid, which acts upon the alimentary principles in the same manner as does the hydrochloric acid of the gastric juice.

"For this reason, sugar at once appears infinitely better than its reputation. Since the composition of milk has been recognised, sugar ought to have been acquitted of the bad repute which adhered to it for many centuries. A slander always leaves something behind; and even to the present time the popular belief that sugar injures the teeth is as widely spread as, on the counter testimony of both experience and science, the opposite doctrine ought to be; for the teeth of the negroes in the West Indian colonies are of a bright white; and that which is thus proved by a whole community remarkable for the abundance of sugar consumed among them, the example of many individuals nearer home amply confirms. Phosphate of lime is the chief constituent of the bones and teeth from the time of adolescence, and the development which the bones of children have to undergo consists particularly in an augmentation of this phosphate. Lactic acid dissolves the phosphate of lime of aliments, and as sugar seconds indirectly that solution, it aids in furnishing to the teeth the great quantity of lime which they need. It will be, doubtless, objected that sugar causes pain in carious teeth. A thousand other substances as well as it irritate exposed nerves; and can we seriously say that what causes suffering to a patient is necessarily injurious to a sound man?

"Let us, then, remove the interdiction which banishes sugar from the little world of children. Far from injuring the teeth, it furnishes lime to them. It is useful to the stomach, because,

taken in moderation, it produces lactic acid. Let us beware of sweetmeats covered with bright-coloured poisons, but leave to children what they love, and to the Christmas-tree its charms."

In the third and concluding book Moleschott discusses "diet" in its general relations to age, sex, state of health and disease, kind and amount of labour, and to the variations of seasons. This is perhaps the most elaborated, as it will be undoubtedly the most popular, part of his treatise. There is no book in the English language where so much that is true and important on these subjects is treated half so effectively as by our author. The dietetic treatment of infant life is particularly worthy of notice; and chemical science is clearly shown both to confirm and harmonize with the results of experience. The whole of the book is written in excellent taste, and at its conclusion he avers his conviction that, however useful a treatise on food for the healthy may be to the people, one which should attempt to give minute rules for the selection of food, beverages, and condiments in disease, would only do mischief.

"Such a description," he says, "would require so thorough a scrutiny of each particular case, with so detailed a consideration of the condition of the body, that either superficiality would annihilate its value, or profundity destroy its clearness. Only the man who has devoted his whole life, with all his powers of sense and thought, to the investigation of the condition of man in health and disease, can unite with the necessary knowledge the more subtle, discriminating judgment essential under such circumstances. Render, therefore, to the medical man that which is his, yet without neglecting, for the healthy state, the study of those rational rules of life which are given by science—for man is only obedient to such laws as he understands."

Such opinions, so well expressed, only compel us to admire Moleschott, both in what he declares, and what he suppresses. He has, indeed, displayed a discretion which our own popular writers would do well to imitate. All attempts to instruct the people in the management of disease have ever been failures, and such they must remain; though we do not cherish the hope that authors, whose only end is self-seeking, will derive any benefit from the futile efforts of their predecessors.

We need scarcely give a formal opinion of the merits of this treatise after so extended a notice; and our analysis will

furnish a better basis for the formation of a judgment on the part of the reader, than any praise we can bestow. But we are well assured, that no physician can read it without pleasure, and no educated man without deriving valuable hints for his guidance in reference to the matters of which it treats.

Sur une Fonction peu connue du Pancréas. La Digestion des Aliments Azotés. Experiences paralléles sur la Digestion Gastrique et Intestinale: Inductions Cliniques. Par Lucien Corvisart. Paris: Masson. 1857–1858. 8vo, pp. 123.

The author of this publication is already favourably known to the profession by his contributions to the periodical literature of our Continental neighbours, as well as by his more systematic writings on subjects closely allied to that of the present memoir. We more particularly refer now to his "Études sur les Aliments et les Nutriments," and his work "De la Dyspepsie et de la Consomption et de l'emploi de la Pepsine en Thérapeutique;" in both of which treatises he advanced views characterized as well by their novelty as by their ingenuity, and to establish which he instituted a series of experiments, to the results of which he alludes in the pamphlet now before us.

To enable our readers more thoroughly to understand the views advanced by Dr. Corvisart in the treatise which is the subject of these remarks, we shall take a hasty retrospect of the views hitherto entertained by physiologists on the part played by the pancreatic secretion in the digestive process. Passing over that period of chemical history in which the pancreatic fluid was, in general terms, described as being similar to the saliva we find amongst the earliest investigators into its nature the names of De la Boë and De Graf. They described it as being a clear and viscid fluid of an *acid* reaction, and of a saline or acid saline taste. Wepfer, Pechlin, and Brunner described it as being of a turbid whitish colour, *not acid* in its reaction, and of a saltish taste. Mayer first stated its reaction to be alkaline, and announced in it the presence of albumen, chloride of sodium, and a peculiar animal matter, statements subsequently corroborated by Magendie.

Tiedemann and Gmelin examined the pancreatic secretion in the dog and sheep, and stated, as the result of their experiments, that the portion of the secretion first obtained was slightly acid, whilst that which flowed subsequently was decidedly alkaline, and richer in albumen than that first obtained (a fact which

explains the apparent discrepancy between the statements of De la Boë and Mayer); the result of their analyses is as follows:—

	In the Dog.	In the Sheep.
Water,	917·2	963·5
Extractive matter and salts soluble in alcohol,	36·2	15·5
Caseous matter and soda salts soluble in water,	15·3	2·8
Albumen and salts,	35·5	22·4

Professor Frerichs has also examined the pancreatic secretion with great care, and has established many interesting facts in connexion with it, not the least important of which is the power which he demonstrated as existing in it, of converting amylaceous matter into sugar, a property shared with it by the saliva, as pointed out by Leuchs. His analysis, as being the most recent one we have, is introduced here; it will be found to vary from Tiedemann and Gmelin's in some important particulars:—

Water,		986·40
Solids,		13·60
Fat,	0·26	
Alcoholic extract,	0·15	
Watery extract (albuminous),	3·09	
Alkaline, Chlorides, Phosphates, Sulphates,	8·90	
Carbonate and phosphate of lime and magnesia,	1·20	
	13·60	
		1000·00

The physical characteristics of the pancreatic secretion have been at different times described by Frerichs, Schmidt, Bernard, Lehman, and others, and their description only differs in minor particulars from each other. Schmidt examined this secretion in the dog, and describes it as being a perfectly clear, limpid, colourless, transparent, viscid, ropy fluid, in which the microscope could detect no particles of any kind; he states its reaction to be strongly alkaline, and that, on the addition of alcohol, it forms a milky white coagulum, which precipitates in thick white flakes, having a supernatant fluid, clear in colour, and strongly alkaline in its reaction. These flakes, if caught on the filter and dried, are capable of being again dissolved in water, and of thus forming a solution resembling in its consis-

tence the original pancreatic secretion. Exposed to a strong heat, they leave behind traces of carbonate of lime. The supernatant alcoholic solution, on evaporation, yields a colourless albuminate.

It is also coagulated by heat, the mineral acids, metallic salts, and pyroxylic spirit. It is not coagulated by dilute acetic, lactic, or hydrochloric acids; alkalies do not precipitate it, but, on the contrary, redissolve what is thrown down by heat, &c.

The specific gravity of the pancreatic fluid is stated by Schmidt to be about 1·031; whilst Lehman states it to range from 1·008 to 1·009; at a high temperature it rapidly undergoes decomposition, losing its property of coagulating; not so at a low temperature; under such circumstances it may be kept many days without undergoing any change. Recently procured, it is odourless, of a slightly saline taste, and becomes frothy on agitation.

Having in this very cursory manner disposed of the chemical history of this fluid, we come to consider the physiological uses that have been assigned to it, the most important of which we shall enumerate in chronological order, viz:—

a. To neutralize the acidity of the gastric juice when it arrives in the duodenum.

b. To act as a diluent of the bile.

c. To assist in the conversion of amylaceous matter into sugar.

d. To saponify the globules of fatty matter found in the chyle.

e. To convert the bile into insoluble products, and thus assist its elimination from the system.

The first two of these we can easily imagine to have been deduced from the similarity existing between this fluid and the saliva; the third and fourth, as being the subject of most elaborate research on the part of Frerichs and others on the one hand, and of M. Cl. Bernard on the other, require a more extended notice at our hands; but to enable such of our readers as have not kept themselves *au courant* with the physiological chemistry of digestion, to enter fully into the question at issue, we shall first venture on what may to other of our readers appear as a very unnecessary description of elementary subjects in connexion with the physiology of digestion.

Albumen and albuminous matters, when ingested into the system, and subjected to the process of digestion, undergo decomposition, and are converted into a substance termed albuminose. Albuminose differs from albumen in not being pre-

cipitated by heat or nitric acid. Alcohol precipitates it, but the precipitate so formed is redissolved by water. It resembles albumen in being precipitated by creasote, tannin, and the metallic salts. Mialhe states, also, that albuminose traverse organic membrane with facility, but that albumen does not; a point of great interest when considered in connexion with the subject of albuminuria. Albuminose through the agency of the solvent fluids of the stomach, is resolved into new definite compounds, termed peptones; the power of *converting* albuminose into these compounds is due to the pepsine, whilst the solvent power is attributed to the acids existing in the stomach. These remarks apply also to gelatine, fibrine, &c.; with which substances peptones are formed in a similar manner.

Eberle, in 1834, described the power possessed by the pancreatic fluid of emulsifying fatty substances, but M. Cl. Bernard has, more than any other investigator, associated his name with these reactions—his experiments on the pancreatic secretion have been made both in the animal economy, and external to it. However, neither Eberle nor Bernard is entitled to the merit of originality in this discovery; it had been to a great extent anticipated by a pathologist of whom British science has just cause to be proud, Dr. Bright. In 1832 he read a paper before the Medico-Chirurgical Society, which he published in the following year, and which will be found in the eighteenth volume of the Transactions of the Society, on Diseases of the Pancreas and Duodenum—in which he drew attention to a peculiar form of oily or fatty substance which he found in the fæcal evacuations of some patients labouring under cancerous affections of these parts. It is true that he instances other cases of a similar kind where this phenomena was not witnessed; still, the germ was there, and had these forms of disease been more numerous in practice than they are, he would have established another pathological fact, sufficient to secure for him a bright niche in the Temple of Fame. One passage from this paper (which is throughout a model for sound inductive reasoning) will justify our claim for Dr. Bright of the merit of, at all events, *initiating* the inquiries that Dr. Bernard has worked out with such zeal and ability. It is this:—"It may, indeed, at last prove that the appearance to which I have been alluding is but the result of ill-digested aliment; but even in that case it will be very important to ascertain this fact." Coupling this passage with the following, it will be seen how near he approached to Eberle's discovery:—"We bring the circumstance of the diseased structure in connexion with this symptom within a narrow limit—*disease, probably malignant,* of that part of the

pancreas which is near to the duodenum, and ulceration of the duodenum itself. These are the only two conditions which can be traced as being peculiar to all these cases."

To return now to M. Bernard's experiments: we shall first briefly describe those he made with the pancreatic fluid, a portion of the pancreas itself, or an infusion of the pancreas, and neutral, oily, or fatty substances. In all cases he found the substances so operated on were emulsified, or, in other words, that by the action of the pancreatic secretion the globules of oil were suspended in this aqueous menstrum, and that they continued in this state for fifteen or eighteen hours, even if exposed to a temperature of from 95° to 100° without separation; furthermore, he established the fact that this is not merely a case of simple suspension, but that the pancreatic fluid separated the oily matter into its base and its peculiar acid, so that when operating on butter he was enabled to detect the peculiar odour of the butyric acid thus set free. These experiments have been confirmed by Bidder and Schmidt. He has not been able to prove that this reaction occurs *within* the animal economy, but Lenz, to decide this point, fed cats on butter for some days, then killed them, and though he found the chyle perfectly milky, he could get no trace of butyric acid: so that as far as this experiment goes, we may presume that the negative is the truth.

To decide the influence exercised by the pancreatic secretion within the organism, he tied the pancreatic ducts of a dog, and found that fat passed unaltered through the intestines, and the lacteals were filled with limpid, colourless chyle. He also made the following experiment on a rabbit, having selected this animal in consequence of the pancreatic duct opening some sixteen or seventeen inches from the pylorus. Having kept the animal fasting for some time, he forced some melted lard into the stomach, and then allowed it to eat carrots and parsnips; after six hours he killed it, and found the lacteals between the openings of the two ducts full of a clear limpid fluid, but below the pancreatic duct they were full of a creamy, milky fluid. As the result of these two sets of experiments, within and without the organism, he infers the true use of the pancreatic fluid to be to emulsify fatty matters, and thus facilitate their absorption.

Experiments of a similar nature, with dissimilar results, however, have been made by other parties. Herbert, for instance, tied the two pancreatic ducts in a rabbit, after having kept it for some days without food; he then gave it food, and after some hours killed it, and found the lymphatic vessels of the mesentery full of a milky fluid,—this experiment he re-

peated several times with a similar result. Colin perceived no difference in the digestion and absorption of fat in cows with fistulæ of the pancreas, and in those who had no such lesion. Lenz and others have made similar experiments, all tending to support Herbert's views.

Having thus disposed of M. Bernard's theory, we shall come to consider that advocated by Dr. Corvisart, which is in fact but a confirmation of the view first advanced by Purkinje and Pappenheim in 1836, that the pancreatic secretion was endowed with a power of dissolving nitrogenized, in addition to that previously announced by Eberle, of emulsionising fatty substances.

Dr. Corvisart opens his pamphlet with some well-put observations on the difference existing between the simple *solution* and the actual *digestion* of an aliment, and at the same time places before his readers the purpose he has in view in recording his observations; thus, we read:—

"A substance that is only dissolved can no more be changed in its character than sugar is modified by the action of water; aliments that have been digested have undergone *transformation.*

"Nevertheless when they recommenced in France experiments relative to the emulsifying powers upon fatty substances, they also repeated the operation with reference to albuminous aliments, but they never advanced any accurate or novel series of experiments, nor any other proof of digestion than that of solution; the result of which was that science remained stationnary at that point where Purkinje and Pappenheim had left it, one and twenty years ago.

"To make a step in advance; to indicate what is the nature not only of the solution, but of the transformation which the pancreas effects in plastic aliments; to strengthen the discovery of Purkinje and Pappenheim with convincing proof; above all, to establish upon facts, simple and easy of verification, the relation and the functional distinction between the stomach and the pancreas. Such is the object of this memoir."

Some most practical observations follow, on the folly of valuing the secretion by its amount instead of by its functional activity; he states, most justly, that—

"The abundance of a secretion but indicates the amount of water it contains: its functional energy, which has another source, viz., its active principles, alone indicates its intrinsic value.

"As far as we are concerned, therefore, the amount of its

digestive power over aliments, is the only criterion of the true secreting intensity of the digestive juices."

A little further on he gives us what may be looked on as a formula for obtaining *pancreatine:* a substance in some respects analogous to pepsine, for which the profession is already indebted to him. It is as follows:—

"I proceeded even still further. After having made a prolonged infusion of the pancreas, either of a sheep or of a dog, I dropped alcohol into it, until it ceased to precipitate; I caught the precipitate on a filter, and redissolved it in water; now with this redissolved precipitate I ascertained that the same weight of albumen (about 40 or 50 grammes) could be liquefied.

"Guided by a great number of analogies existing between pancreatine and pepsine, the features of which are described in the course of this memoir, I conceived the idea of precipitating the infusion of the pancreas, as we precipitate the infusion of the mucous coat of the stomach. In this manner I obtained a precipitate composed of oxide of lead and of pancreatine (?); this I decomposed by hydro-sulphuric or sulphuric acid. In this experiment, instead of pepsine, pancreatine (?) was set free in water, slightly acidulated with the acetic acid of the lead salt. Well, this solution, containing the active principle of the entire pancreas of a sheep or of a dog, acid though it was, also liquefied 40 to 50 grammes of albumen."

He next establishes by a series of most conclusive experiments these facts,—first, that the pancreatic juice transforms the white of an egg into albumino-peptone as efficiently as does the gastric juice, and that the resulting peptones are identically similar, in spite of the difference existing between the two secretions; second, that an albumino-peptone produced by the gastric juice is unacted on by the pancreatic juice.

The succeeding eight or nine pages are occupied by an inquiry into the truth of the theory which asserts that the bile, when it meets in the duodenum the results of the process of the gastric digestion, is capable of decomposing and precipitating them. This theory he proves to be founded on error; and he demonstrates by a series of experiments of a most varied character, that it is not any portion of the alimentary substances, but, on the contrary, that it is the bile itself, that is the cause of this precipitation; for the particulars of these experiments, however, we must refer the reader to the pamphlet itself, as to reproduce them here would entirely exceed the limits which we have proposed for these observations.

After some remarks, in each case supported by a series

of most ingeniously devised experiments, as to the action of the pancreatic fluid on fibrine, and its power of producing a *fibrino-peptone* perfectly analogous to that produced by the gastric juice, and demonstrating that to produce this action it is perfectly immaterial whether the secretion be acid, alkaline, or neuter, our author comes to the consideration of one of the most important problems in the entire work, and one having an especial pathological bearing,—the action of the pancreatic upon the gastric juice. Here he establishes a most remarkable law, viz., that these two secretions discharge the same duty in the animal economy,—that of digesting albuminous matters; still, it is essential that they should act apart from each other. Under these conditions, each is capable of discharging its own functions, but, should they come in contact with each other, instead of their power being increased, it will be absolutely destroyed. He proves that the pancreatic juice will dissolve such nitrogenised substances as, escaping the action of the gastric juice, arrive unaltered in the duodenum. He also proves that it has no action on the peptone that is the result of gastric digestion, but that if, by any accident, the two secretions meet in the duodenum, the result will be that they shall neutralize each other; proving thus, as we shall see hereafter, another, and hitherto unsuspected cause, of that hydra-headed monster, indigestion. This fact is so important that we shall give the experiment establishing it in his own words:—

"I took 100 grammes of the gastric juice, and an equal quantity of the pancreatic secretion of a dog, both possessed of an energetic and accurately determined digestive power. I placed them, with some dressed albumen, for six hours in a water-bath; digestion was the result; but the experiment taught me a most unlooked-for fact, that the sum of the digestive powers of the two ferments were not added to each other.

"In fact, in a comparative experiment, I had ascertained that, separately, the gastric juice had produced 5 grammes of albumino-peptone, and the pancreatic liquid, 8 grammes; in other words, a total of 13 grammes of alimentary matter had undergone transformation.

"However, united, the two ferments, placed in the best condition to insure complete digestion, had only produced, according to my experiment, 5·75 grammes."

The means adopted by nature for preventing this *contre-temps* occurring more frequently than it does are thus summed up:—

"There is, therefore, one condition absolutely essential for

the due performance of either digestion; it is, that they should be separated.

"In fact, asunder, the two ferments assist each other; the alimentary matter escapes neither one nor the other.

"But, on the contrary, it escapes them both, should they unite.

"Nature has prepared herself for this conflict in three ways: 1st. By the pylorus, which separates the two digestions. 2nd. By the very act of gastric digestion, which, in producing peptones, destroys the pepsine. 3rd. By the bile, which in its passage destroys the digestive power of this latter."

The relative digestive powers of the two secretions are stated to be nearly equal, as appears from this extract:—

"If we examine the pancreatic secretion superficially, that is to say, in an absolute manner, we would attribute to it an enormous amount of digestive power (in fact, 100 grammes of this fluid digest 200 grammes of fibrin); and in this point of view we would be inclined to consider it as far more important than the gastric juice.

"But if we examine the question in a more physiological manner, we quickly perceive the mistake.

"The stomach, in fact, supplies six times (if not ten times) more gastric juice than the pancreas secretes of its own special secretion: this quantity compensates for the want of concentration in the gastric juice, whilst the small amount of pancreatic secretion is made amends for by the intensity of its ferment.

"We cannot, therefore, be surprised if our experiments tend to prove that one period of pancreatic digestion is capable of furnishing the same quantity of digested aliment as one period of gastric digestion.

"So that the relative power of the pancreas and of the stomach in the digestion of nitrogenised aliments is very nearly equal."

Dr. Corvisart next establishes the power of the pancreatic fluid in assimilating gelatine; proves the action is strictly one of nutrition, and identical with that of the gastric juice, inasmuch as gelatine acted on by the pancreatic secretion is no longer capable of solidifying, no more than it can after undergoing digestion through the agency of the gastric juice. In this chapter he alludes to some interesting experiments published in his work "Aliments et Nutriments," and made with a view of explaining how injections of broth, though not subjected to the action of the digestive juices, could be assimilated, and act as nutriments. This effect he states to be produced by the prolonged digestion of the aliment in the water having

in some degree converted it into a substance resembling albumino-peptone. He acknowledges that this resemblance is very feeble indeed; but if it be at all true, it gives us a most important hint indeed in the employment of such means of support, viz., that broths to be so employed should be subjected to a very prolonged digestion, so as to make them assume more closely the condition they would arrive at were they once subjected to the action of the gastric juice; but even the most prolonged operation of this nature can only approximate the action of nature: one is a vital, the other a chemical action, and a long distance as yet separates these two operations. It is on these grounds alone that we can explain how ineffectual our best-directed efforts are to support the system in this manner; that we may do so for a time is an incontestible clinical fact, but to be enabled to do so for any lengthened period is, we fear, beyond our finite powers.

In the chapter on the pancreatic digestion of muscular fibre, he establishes, by a similar chain of rigorous experiment, the fact that this secretion is able to convert it into musculo-peptone in a manner perfectly similar to that in which it is affected by the gastric juice; and further, that during the period of digestion these two fluids seem to digest each of them an equal amount. He also gives us, as the result of his experiments, a table by which to estimate the digestibility of several alimentary substances in virtue of the relative amount of peptones produced by each. This table we extract, though, even by his own acknowledgment, it will require a far more extended series of experiments before it can be looked on as even approaching accuracy—

TABLE *of the Digestibility of Animals.*

Aliments.	Stomach or Gastric Digestion.	Intestinal or Pancreatic Digestion.	Sum of the two united.
	Grammes.	Grammes.	Grammes.
Albumen, .	6 to 7	7	13 to 14
Cellular Tissue,	6	6	12
Gelatine, . .	12	9	21
Fibrin, . .	15	12	27
Casein, . .	13	13	26
Muscular Tissue,	15	15	30

The practical value of this table is thus stated by Dr. Corvisart:—

"Though I am sure that these figures are not very exact, for this reason, that my experiments have not been sufficiently numerous; still, their examination does not the less yield self-

evident instruction. With an equal amount of aliment, and with an equal amount of digestive power, albumen, cellular tissue, and gelatine, supply twice as small an amount of peptones, that is to say, supply twice as small an amount of nourishment, as if we consumed muscular tissue or casein: valuable experimental reseaches, that explain the cogent reasons why meat supplies a large amount of strength and why it is that a small quantity of cheese supports the poor workman."

Not satisfied with proving the power of the pancreatic juice in converting, in the duodenum, nitrogenised substances into peptones, Dr. Corvisart brings forward the startling doctrine that it also fulfils this duty in the portal circulation, and contends for what he terms a true *intra-venous* digestion. He asserts that this secretion is carried into the portal vein, being absorbed through the medium of the mesenteric veins; that there it reacts precisely as it would on fibrin present in the duodenum, on the globules of fibrin present in the blood, and produces thus a species of true digestion. He founds this novel doctrine on the undoubted fact that the portal blood is richer in albumen than blood drawn from the jugular vein, as proved by an analysis of M. J. Béclard. This increased quantity of albumen he accounts for by the action of the pancreatic fluid, which he presumes to be absorbed, and which he believes to convert the globules of fibrin in the blood contained in these vessels, by a true digestive process, into albumen. This theory is of so novel a character, that we must permit Dr. Corvisart to announce it for himself, merely premising that we are much mistaken in our estimate of his zeal and ability if we do not, and that at no distant period, hear more from him on this subject.

Before quoting Dr. Corvisart's rather startling theory, we think that perhaps our readers would wish for themselves to study the analysis on which it is founded: we therefore submit it for their inspection.

Blood of a dog killed in the active digestion of bread and meat.

BLOOD OF THE JUGULAR VEIN.		BLOOD OF THE PORTAL VEIN.	
Globules, fibrin, . . .	158·20	Globules, fibrin, . . .	58·97
Albumen and salts, . .	62·90	Albumen and salts, . .	162·18
Sum of nitrogenous materials, . .	221·10	Sum of nitrogenous materials, . .	221·15

Dr. Corvisart comments on the result of this analysis in the following terms:—

"This experiment, which, according to this author (M. Béclard), demonstrates that a considerable quantity of albumen

(100 parts) comes from the intestine to enrich the portal vein, leads me, on the contrary, to this conclusion: that the azotised materials of the blood of the portal vein, contrasted with the general venous blood, *have not increased*, through the agency of digestive absorption, *one hundredth part;* in fact, the sum of these materials is this:—

Blood of the jugular vein = 221·10.
Blood of the portal vein = 221·15.

"We know, besides, how little advanced, at the second and third hour of digestion, are the solution, the transformation of meat, and consequently its absorption, so much so, that one would have reason to be astonished, *a priori*, that the products, at this moment digested and absorbed, could already have had the power to triple the primitive quantity of the albumen of the blood, and to raise it from 58 to 162 parts.

"If, in addition, we examine the figures of the preceding analysis, our attention is arrested with one thing, that the azotised materials of the portal vein (compared with the general venous blood) are modified not in their quantity, but in their nature, as if there had taken place in the blood itself a simple transformation of its azotised elements, one with the other; 100 parts of globules and fibrin had made room precisely for 100 parts of albumen.

"It will be remarked that when, by an act of alimentation, the same elements, globules and fibrin, arrive in the *intestine*, they then forthwith undergo on the part of the pancreatic juice a precisely similar transformation into albumen (caseiform) by a commencement of the digestive action.

"Therefore, if I consider that about the second or third hour of digestion, first, the pancreatic juice is poured out in a pure, and consequently active state, into the duodenum; secondly, that it can reach the portal vein, for absorption by the mesenteric veins is not suspended; thirdly, that the pancreatic juice can exercise its digestive action in an alkaline medium, like the blood,—I hesitate not to conclude, however daring at first sight may seem my hypothesis, THAT IN THE PORTAL VEIN THE GLOBULES AND FIBRIN OF THE BLOOD CONDUCT THEMSELVES IN NO OTHER WAY THAN THEY WOULD DO IN THE INTESTINE, UNDER THE INFLUENCE OF THE PANCREATIC JUICE, THEY UNDERGO A COMMENCEMENT OF DIGESTION, AND TRANSFORM THEMSELVES INTO ALBUMEN (CASEIFORM ALBUMEN)."

Dr. Corvisart's treatise concludes with what he terms corollaries, or pathological indications: these, as being legitimate deductions from most ingeniously conceived and most labori-

ously and accurately conducted experiments, we most strongly recommend to the thoughtful perusal of our professional brethren, expressing, however, a fervent hope that this new addition to our Materia Medica, "pancreatine," will not be so extensively, and at the same time so indiscriminately, employed as its elder brother, "pepsine." We do not wish in the least to detract from its remedial virtues when employed in its proper place; but we do most energetically protest against either being employed, in and out of season, to the exclusion of other well-tried and approved medicines. Nothing conduces more to foster empiricism than the universal and indiscriminate employment in the treatment of disease, of any nostrum; nothing eventually can have a more degrading effect on medicine as a science than this blindfold system of therapeutics. It is practice such as this that sanctions, nay, encourages, the employment of such farragoes as Morrison's Pills or Holloway's Ointment. How can we wonder at the public allowing themselves to be imposed on by such charlatans, when we meet with practitioners, who should know better, invariably prescribing *pepsine, et hoc genus omne*, for any disease they are called on to treat. We in our walk have met with such, and with difficulty have suppressed—we were going to say a smile, perhaps we should more truly say a sigh—when hearing pepsine gravely suggested as the one thing needful to conduct back to health the patient already far advanced in phthisis. With such practitioners we fear much that pancreatine will now usurp its place; but for their benefit we must remind them of the fact, that to fulfil any useful indication the pancreatine must escape the gastric digestion, for if it comes in contact with the gastric juice, the action of both will be neutralized. Nothing, however, would afford us greater pain than that Dr. Corvisart should apply these strictures, well merited though they be by others, to himself or to his researches. We but express an opinion that we are sure he himself would be the first to sanction, when we repudiate the idea that the result of investigations of so important a nature as his are, should be so perverted and misapplied as we fear that they have been.

With these remarks, that we have felt ourselves coerced to give utterance to, we conclude our extracts from Dr. Corvisart's treatise. It is one that does even his reputation honour, and which, to our satisfaction, has established the views that he entertains. That the pancreatic secretion is capable of discharging the functions for which he contends, appears to be established beyond all controversy; but to state that it discharges this function only, is more than we are prepared to admit. On the con-

trary, we feel satisfied that this is but one of many duties which it has to discharge, and from a review of all that has been written on the subject, as the result of the numerous experiments made by the celebrated men to whose labours we have already referred, we should be inclined to assign to it, as its functions, the following as the most important:—

1st. To assist in the conversion of amylaceous matter into sugar.

2nd. To convert fatty matter into emulsions, and thus facilitate their absorption.

3rd. To assist the gastric juice in its function of converting nitrogenised aliments into peptones.

That it enjoys each of these properties has been now established beyond doubt; and there is nothing inconsistent with the laws of physiology in presuming that it is destined to discharge in the organism this triple duty. Frerichs and others have by their experiments put it beyond doubt that it is fully capable of converting starch into sugar; and, as far as we are aware, these conclusions have not been hitherto controverted. That it is not the *only* secretion capable of effecting this metamorphosis is not sought to be established, but that it is one of the group by which this reaction is induced cannot be questioned.

That the second property has been doubted is a fact by this time pretty well known to the readers of these pages; still, for ourselves we must state it as our belief, that the weight of evidence is in favour of the presumption that this, also, is one of its provinces. Bernard's experiments, within and without the organism, all tend to draw our minds to this conclusion—that, when agitated with oily matter, it is capable of producing a most perfect emulsion; an emulsion, also, that is of a permanent character is now established by such a number and diversity of experiments, that it can scarcely ever again be called in question. But the results of experiments performed within the economy have been so discordant, so at variance with each other, that we cannot positively assert that this function has been established beyond a cavil; still, as we have stated before, the weight of such experiments is in favour of this view, and when we couple with them the results of such pathological observations as we have at our command, we find that our position is strengthened, and we feel justified in assigning this function also to the pancreas.

The third use that we have assigned to the pancreatic secretion is that so ably advocated for it by our author, Dr. Corvisart. The result of his experiments, as they stand at pre-

sent, can leave no doubt on our minds, but that it is capable of discharging this function; and, indeed, if we examine the literature of the subject, we shall find facts and opinions, not alluded to, however, by Dr. Corvisart, tending to strengthen his views, advanced by some of the most eminent of the chemico-physiologists in whom this century has been so rich: thus we find Bidder and Schmidt giving it as their opinion,—the result, our readers will please to remember, of most extensive research,—that though the gastric juice is the means through which the greater portion of all azotised substances introduced into the stomach is converted into peptones, still, that it is not able to discharge the whole of this duty; consequently, that a portion of nitrogenised aliment in which this metamorphosis has not been produced finds its way into the duodenum; but that, nevertheless, it has been prepared by the action of the stomach in such a manner as to fit it for undergoing this digestion through the medium of the *intestinal* juices. That the stomach does by its action produce some such effect on aliments committed to its charge, and in this respect discharges for the duodenum an office analogous to that which the teeth, in the act of mastication, do for the stomach itself, is admitted on all hands; but that this preparation, aided by the intestinal juices, is the sole agent engaged in converting nitrogenous substances, so situated, into peptones, is questioned not only by Dr. Corvisart, but by many other authorities. Thus, Lehman and Steinhauser introduced into the ileum and large intestines portions of albumen; and, as the result of their experiments, found that they were passed in the excrement perfectly unchanged; this experiment goes even the full length of denying such agency altogether.

In saying farewell to Dr. Corvisart, we do so with a profound conviction of the important obligations under which he has laid his professional brethren, and in the anxious desire soon again to meet him. Whenever we shall do so, we doubt not that we will derive an equal amount of pleasure and instruction from the study of any observations he may vouchsafe us, as we have done from the perusal of his present treatise, therefore we say *au revoir*, Dr. Corvisart, we trust not *adieu*.

An Introduction to Clinical Surgery; with a method of investigating and reporting Surgical Cases. By FURNEAUX JORDAN, Demonstrator of Anatomy at the Queen's College, and Pathologist to the Queen's Hospital, Birmingham. London: Churchill. 1858. 12mo, pp. 155.

THIS unpretending little book fills an experienced vacuum in surgical literature, and fills it so well that it is not probable another author will invade the same province for some time to come.

The author rightly remarks on the numerous contributions to clinical medical research—some of them very excellent—and on the remarkable barrenness of our literature in works relating to surgical matters, of such a kind as to facilitate the investigations of the student; and this constitutes an effective excuse for his own work.

The first chapter constitutes "a clinical inquiry into the present state of surgical investigation," and although Mr. Jordan, like most other advanced surgeons of the era, condemns with severity the laxness with which surgical inquiries are entered upon and carried out, even by those who enjoy the privilege of an hospital position,—we do not think that he has over-estimated the rarity of exact case-taking, and, therefore, of exact knowledge in this branch of our art. The contrast, indeed, in these particulars presented by the medical and surgical sides respectively of hospitals, is universally remarked; and when we consider the general preference of the mass of students for the objective realities—the dramatic situations of the surgeon's side—and that this is the path whereby the arcana of medicine are ordinarily approached by our alumni,—we cannot but regret that more attention is not bestowed by the teachers upon the education of the senses and the development of the judgment at this critical period of their career. Much of the utter futility of hospital attendance may be not unfairly ascribed to this condition of things.

The second chapter consists of "observations on the investigation and registration of surgical cases," in which the author insists on the great importance of a careful minute registration of all visceral changes, and also of all healthy functions, and observes that "the omission of points that seem unimportant to the reporter now may render the case valueless to the surgical investigator ten years hence,—it is better to state that the osseous and articular systems are healthy in a case of piles, than to make no mention of these in an inflammation

of the iris or an eruption of the skin." The importance of such observations will be sufficiently apparent on a very cursory glance over the records of British surgery. Very few complete histories of any surgical malady can be found; and until there is a more just appreciation of the real unity of medical and surgical science, we do not look for much improvement in these histories.

The third chapter sets forth a complete method of investigating and reporting surgical cases, in which we are glad to find the author has given so much prominence to the phenomena of the special senses. We do not despair of seeing the time when general surgeons will consider it disgraceful to be ignorant of the disorders of the eye and ear; and particularly now that surgeons of the high reputation of Bowman and Critchett have disdained to stand on "special" ground. Chomel has made the excellent remark, that, although gentlemen may pay an isolated attention to the different organs or systems of the human body, unfortunately these organs or systems are not isolated in their sufferings. The fashionable specialists of our metropolitan cities would confer a benefit on society if they would recollect this fact. The fourth chapter is but an epitome of the previous one, and admirably fitted for the weaker vessels of student-craft.

In the fifth chapter are described the "instruments and agents used for obtaining surgical information." It is written with care, and several instruments are noticed, such as the ophthalmoscope, still too little used in clinical inquiries. We advise the author to extend this chapter in a future edition, as its brevity is scarcely consistent with a full treatment of this important branch of his subject. In reference to the "exploring needle," it is written that "the too sparing is preferable to the too free use of an instrument which might aid in the diagnosis of a few cases, and do harm in others." He might have added—and furnish an incentive to imperfect investigation on the part of the surgeon. When a man knows that a thorough incision is remediless, if he has made a mistake, he is likely to take every means to avoid error. But if he can escape difficulties and dangers—though he does not escape so often as is imagined—by the use of the needle, he is apt to puncture when he ought to ponder. Whist-books sometimes tell us, "when in doubt to play a trump;" and many physicians seem to think that the playing of that king of trumps, mercury, offers a like relief in *their* perplexities. Similarly, we have thought that many surgeons use the exploring

needle as a safe procedure, when they lack the ability to judge, or the patience to await the evolution of events.

After a brief allusion to post-mortem examinations, we arrive in the seventh chapter at an "analytical estimation of surgical symptoms." This section of the work is highly creditable to the author, who shows in it a deep acquaintance with surgical phenomena. "Doughiness," though rightly appreciated by Mr. Jordan, well merits a separate description in his catalogue; and we also suggest the propriety of stating the physical characters of the urine, such as increased gravity, increased quantity, and heightened colour, under the head of "Pyrexia." The following illustrates the mode in which the author has performed this part of his task: it relates to the common phenomenon of "discoloration:"—

"In acute abscess the integument is red, of a bright, dull, or bluish tinge; in the healing ulcer the granulations are red; in the weak, pale; and in the inflamed, of a claret colour; the surface of sloughing, phagedænic, and sloughing-phagedænic ulcers is grey or green, or yellow, or brown; in gangrene, the parts affected are of a purple, blue, brown or black colour; in lupus, the redness is bright and shining; syphilitic ulcerations and eruptions are of a coppery hue; in cutaneous erysipelas there is a bright scarlet hue; a deeper red marks the cellulo-cutaneous form; and in cellular erysipelas the redness is slight or mottled; in pyœmia, the skin is sallow or of a leaden colour; in cancer, sallow; in scrofula, either very pink and transparent, or very darkly sallow; the skin covering a boil is of a dark red, and that covering a carbuncle, of a claret colour; the skin is red in acute inflammation of periosteum and bone, in acute synovitis, and in acute orchitis; when bone dies it is, presuming it to be visible, at first white, afterwards dark brown or black; nævus presents a bright, dusky, or livid redness; in phlegmasia alba dolens the skin is white; the margin of the eyelids is red in ophthalmia tarsi; in the ophthalmias the conjunctiva is of a bright diffused redness; in sclerotitis, there is a pink zone around the cornea, a similar zone accompanies most of the deeper seated ocular inflammations; in onyx and hypopyon there is a yellow appearance at the lower margin of the cornea, which is more deeply seated in the latter than in the former; in staphyloma of the cornea, the colour is white, finely mottled with black; in arcus senilis, there is a white circle at the margin of the cornea; frequently after the external inflammations of the eye, the whiteness of the sclerotic appears to encroach upon the cornea at its upper and lower margins; in iritis, the iris undergoes important changes in colour, the dark becoming reddish, the blue and grey becoming green; in cataract, there is a white opacity behind the pupil, and, in the same spot, in glaucoma, a greenish or greyish drab tint; in inflammation of the membrana tympani, the

membrane is dull and opaque, or perhaps of a reddish colour; in throat deafness, there is very dark redness of the fauces and tonsils; indolent piles are of a dark, dull, blue colour—an inflamed pile is red; in extravasation of urine, red patches appear in the skin of the perinæum, scrotum, and groins, which are followed by black spots; ecchymosis from injury is evidenced by a succession of the following colours—dark red, black, purple, green, and yellow."

The eighth and last chapter gives, in an elaborate manner, "the synthetic estimation of surgical phenomena." This is the longest, and by far the most important section of the work. Mr Jordan quotes no authors; but has evidently preferred to digest his authorities rather than to display them, and all is tinged with the result of his own powers of observation.

The publication of this book is very opportune for students now about to commence in our schools the study of surgery. To them we earnestly recommend it, as supplying, in a compact form, all that they require, which any book can give, for the purpose of becoming competent to analyze, duly value, and correctly register the phenomena of surgical affections, to the literature of which it is a highly interesting addition.

Medicines: their Uses and Mode of Administration; including a Complete Conspectus of the British Pharmacopœias, an Account of New Remedies, and an Appendix of Formulæ. By J. Moore Neligan, M. D., &c. Dublin: Fannin & Co. 1858. Fifth Edition, 8vo, pp. 620.

The author says in his preface—

"When a book reaches a fifth edition it scarcely requires a preface, yet I cannot present my work on the Materia Medica once more to the profession, without again expressing my gratitude for the favour which it has met with. By a careful revision, and the addition of all new matter which I deemed worthy of being recorded, I have endeavoured to make it of still further use to the practitioner and to the student. My position as Editor of the Dublin Quarterly Journal of Medical Science has, as was the case with the fourth edition, been of much aid to me in bringing the work down to the time of publication, as regards the added matter; and increased experience has emboldened me to select, from the many additions daily made to the list of new medicines, such only as are likely to prove of permanent value."

For the first of the reasons above given, we may safely say that it does not require a review either; and, from causes easily to be understood by our readers, we can do no more than indicate its publication, and quote one of the new articles to show how far it is brought down to the present state of our knowledge on the subject of which it treats. Moreover, the article we quote will prove a proper adjunct to our review of M. Corvisart's book, a few pages back:—

"PEPSINA.—*Pepsine. Medicinal pepsine.* The active principle of the gastric juice in animals. Pepsine combined with starch.

"PREPARATION.—The following is the process proposed by M. Boudault for the preparation of this substance. The rennet bags of sheep are reversed and washed under a stream of water; the mucous membrane is then scraped off with a knife, reduced to a pulpy state, and digested for 12 hours in distilled water. The solution thus obtained is filtered, and neutral acetate of lead added, so as to throw down the peptate of lead, which is then decomposed by a stream of sulphuretted hydrogen. The sulphuret of lead is separated by filtration, and the resulting solution acidulated by the addition of lactic acid. It is then evaporated at a temperature not exceeding 100° F. to a syrupy consistence, and dried starch added in such proportion that one part of the resulting compound will have the power of dissolving four parts of fibrin at a temperature of 98° F.

"PROPERTIES.—*Medicinal pepsine* thus obtained is in the form of a fine light powder of a fawn colour, with a faint odour of recently vomited matter, and a nauseous bitter taste. It forms a turbid solution with water in consequence of the presence of the starch, but the pepsine and lactic acid are completely dissolved. It is also soluble in weak spirit, but not in strong alcohol. The watery solution precipitates with salts of lead and mercury, but not with nitrate of silver. If a solution of pepsine in water be heated to a temperature of 120° F., it becomes turbid, and no longer possesses its digestive properties.

"ADULTERATIONS.—Pepsine is often very badly prepared, or undergoes decomposition from being kept in a damp place exposed to the air, and is consequently inert. The only reliable test for its goodness is its power of dissolving fibrin as above indicated. This same test will detect some spurious preparations, which are also sometimes sold for true medicinal pepsine.

"THERAPEUTICAL PROPERTIES.—This substance was first introduced into the practice of medicine by M. Corvisart under the name of *poudre nutrimentive* (*pepsine acidifiée*) as a remedy in dyspepsia and consumption. It can, however, in my opinion be regarded in no other light than as an artificial aid to digestion, supplying the deficiency of gastric juice which exists in some disordered states of the stomach, and therefore should be employed as a palliative only, and not as a medicine. Its properties indicate in what cases it is likely to prove useful; but, like other therapeutical agents too highly vaunted at first, it is now falling much into disuse.

"Dose and Mode of Administration.—Numerous preparations, solutions, syrups, &c., of pepsine have had their proposers and supporters, but M. Boudalt's powder is the only one deserving of use. It may be given in doses of 15 grains immediately before meals, and can be taken when spread between two thin slices of bread and butter, or dissolved in a tablespoonful of soup, which, however, should not be hotter than new milk."

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